



DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO

GOVERNOR

MIKE D. McDANIEL, Ph.D.

SECRETARY

Certified Mail No.

Agency Interest No. 51854

Activity No.: PER20040004

Mr. Reg Jones
Plant Manager
Carville Energy, LLC
P.O. Box 418
St. Gabriel, LA 70776

RE: Part 70 Operating Permit Renewal, Carville Energy Center
Carville Energy, LLC, St. Gabriel, Iberville Parish, Louisiana

Dear Mr. Jones:

This is to inform you that the Part 70 Operating Permit Renewal for the above referenced facility has been approved under LAC 33:III.501. The submittal was approved on the basis of the application submitted and its approval in no way relieves the applicant of the obligation to comply with all applicable requirements. A new application must be submitted if the reported emissions are exceeded after operations begin. The synopsis, data sheets and conditions are attached herewith.

It will be considered a violation of the permit if all proposed control measures and/or equipment are not installed and properly operated and maintained as specified in the application.

Operation of this facility is hereby authorized under the terms and conditions of this permit. This authorization shall expire at midnight on the ____ of _____, 2012, unless a timely and complete renewal application has been submitted six months prior to expiration. Terms and conditions of this permit shall remain in effect until such time as the permitting authority takes final action on the application for permit renewal. The permit number and Agency Interest No. cited above should be referenced in future correspondence regarding this facility.

Done this _____ day of _____, 2007.

Permit No.: 1280-00092-V2

Sincerely,

Chuck Carr Brown, Ph.D.
Assistant Secretary

CCB:CWS
c: EPA Region VI

ENVIRONMENTAL SERVICES

: PO BOX 4313, BATON ROUGE, LA 70821-4313

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AIR PERMIT BRIEFING SHEET
PERMITS DIVISION
LOUISIANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy, LLC
St. Gabriel, Iberville Parish, Louisiana

I. Background

Carville Energy, LLC, owns the Carville Energy Center, a cogeneration power plant. Carville Energy Center is operated by Calpine Operating Services Co. The facility commenced operation in 2003. The Carville Energy Center currently operates under Permit No. 1280-00092-V1, issued May 16, 2001, PSD-LA-638(M-1), issued May 16, 2001, and Permit No. 1280-00092-IV1, issued May 22, 2002.

This is the Part 70 operating permit renewal for the facility.

II. Origin

A permit application and Emission Inventory Questionnaire were submitted by Calpine Operating Services Company on June 10, 2004, requesting a Part 70 operating and Acid Rain permit renewal. Additional information dated June 29, and December 19, 2006, was also received.

III. Description

Carville Energy Center is a cogeneration power plant that supplies the primary source of steam to the Total Petrochemicals USA facility (Cosmar, Inc.), located north of the site. The facility also provides electricity to the nearby electric transmission system. The facility consists of two combustion turbine units, one steam turbine-generator unit, and two heat recovery steam generator (HRSG) units. The plant electrical generation rating is a nominal 530 megawatts. Each combustion turbine provides exhaust gas to one HRSG unit where steam is produced. The steam is then supplied to the steam-turbine generator for electrical generation and to the adjacent Total Petrochemicals USA facility for employment by the steam host. The units consist of two General Electric Frame 7F gas turbines that are fueled with natural gas.

Emissions occur from two cogeneration units consisting of turbines and HRSGs, one seven-cell cooling tower, equipment fugitives, and other activities such as start-up, shut-down, and insignificant activities.

The duct burners in the HSRGs will fire natural gas and will utilize combustion turbine exhaust as the combustion air supply. Consequently, the duct burners can not operate if the combustion turbines are not operating. These duct burners will be utilized to accommodate fluctuations in steam and electric demands.

Another operating condition for the plant occurs when the combustion turbines operate in power augmentation mode. Power augmentation is a combustion turbine operating mode where, for periods of time, the combustion turbine utilizes steam injection to increase output beyond normal operating levels. Additional electric generating capacity from the combustion turbines can be increased approximately 10% above 100% normal capacity for short periods of time. Power augmentation mode is limited to 1,500 hours per year per combustion

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turbine.

Start-up / Shut-down operations at the power plant are included in this modification. Start-up operations are defined as the time when the unit starts combusting fuel until Mode 6Q is achieved. Mode 6Q is primarily driven by the reference temperature of the combustion turbine, which is a temperature of the exhaust of the turbine. The gas valves open when the reference temperature on the combustion turbine reaches 2,145°F. The Continuous Emission Monitor System (CEMS) has a signal for when the unit reaches Mode 6Q. Shut-down is the reverse of Start-up, when the unit transfers out of Mode 6Q at 2,140°F until no fuel is combusted. Because the Carville Energy Center uses natural gas to fuel the turbines, only Nitrogen Oxides (NO_x), Carbon Monoxide (CO), and Volatile Organic Compounds (VOCs) are the pollutants of concern.

A substantial technological limitation exists with respect to limiting start-up / shut-down emissions for combined cycle generating units. Start-up event duration is limited by the time required to adequately warm the heat recovery steam generator (HRSG), associated steam-handling systems and the steam turbine without imparting harmful thermal stresses to this equipment. As the combustion turbine begins operation, the exhaust gases which pass through the HRSG warm the water filled tubes, which begins the process of creating steam to drive the steam turbine. Although the process of creating steam can begin relatively quickly, an abrupt introduction of steam to the steam turbine can result in uneven expansion of components. This uneven expansion of components can have severe adverse effects on its ability to operate, as well as creating a significant safety hazard. In general, the more time a combined cycle generating unit has been off-line, the more time is required to properly warm the steam cycle.

There are two types of start-up events depending on the length of time that the turbine is off-line between operational events. A cold start is associated with the turbine being offline for more than 48 hours, while a warm start occurs when a unit is down for less than 48 hours.

GRP005, 1-98 No. 1 Cogeneration Unit, lists the Annual (TPY) emission rates which represent the maximum potential-to-emit (PTE) for the unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates. The permittee can select which of the following scenarios and its associated emission rates to operate under without exceeding the maximum PTE for GRP005. GRP007, Scenario 1: 1-98 SU No. 1 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP005. GRP008, Scenario 2: 1-98 SD No. 1 Cogeneration Unit provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP005. GRP009, Scenario 3: 1-98 NO No. 1 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP005. Start-up/shut-down emissions are not included in Scenario 3.

GRP006, 2-98 No. 2 Cogeneration Unit, lists the Annual (TPY) emission rates which represent the maximum potential-to-emit (PTE) for the unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-

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down operating rates. The permittee can select which of the following scenarios and its associated emission rates to operate under without exceeding the maximum PTE for GRP006. GRP010, Scenario 4: 2-98 SU No. 2 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP006. GRP011, Scenario 5: 2-98 SD No. 2 Cogeneration Unit, provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP006. GRP012, Scenario 6: 2-98 NO No. 2 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP006. Start-up/shut-down emissions are not included in Scenario 6.

Start-up/shut-down emissions from the two turbines, EQT001, 1-98A Gas Turbine No. 1, and EQT002, 2-98A Gas Turbine No. 2, are existing emissions which are being reconciled into the permit. These emissions have existed at the site since initial start-up but have not been required to be in either the Part 70 or the PSD permit. The emission increases are not due to the installation or modification of any new equipment at the site.

In this Part 70 renewal, Carville Energy will reduce the annual Particulate Matter (PM₁₀) emissions from the duct burners, EQT006, 1-98B HRSG Duct Burner No. 1, and EQT007, 2-98B HRSG Duct Burner No. 2, by 8.72 tons per year. The reduction is due to a recalculation of the annual PM₁₀ emissions by Carville Energy. This reduction is not due to a modification of the existing equipment.

Carville Energy proposes to make the following changes to the Carville Energy Center:

- Emission Point EQT 1, 1-98 No. 1 Cogeneration Unit, will include sources 1-98A, Gas Turbine No. 1, and 1-98B, HRSG No. 1, because both sources share a common stack.
- Emission Point EQT 2, 2-98 No. 2 Cogeneration Unit, will include sources 2-98A, Gas Turbine No. 2, and 2-98B, HRSG No. 2, because both sources share a common stack.
- Include emissions from an emergency generator and a fuel gas heater.
- Include start-up/shut-down emissions.
- Update the list of insignificant activities.

Estimated emissions in tons per year are as follows:

<u>Pollutant</u>	<u>Before</u>	<u>After</u>	<u>Change</u>
PM ₁₀	188.56	180.16	- 8.40
SO ₂	13.30	12.18	- 1.12
NO _x	738.30	768.42	+ 30.12
CO	468.00	899.56	+ 431.56
VOC *	47.60	76.48	+ 28.88

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* VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Benzene	4.33	4.32	- 0.01
Formaldehyde	8.65	8.66	+ 0.01
n-Hexane	1.08	1.08	-
Toluene	2.16	2.16	-
Total		16.22	

Other VOC (TPY): 60.26

Emission increases for both NO_x, CO, and VOC are primarily due to including the start-up / shut-down emissions of the two turbines, EQT001, 1-98A Gas Turbine No. 1, and EQT0002, 2-98A Gas Turbine No. 2. These emissions have existed at the site since initial start-up but have not been required to be in the permit. The emission increases are not due to the installation or modification of any new equipment at the site. Because of the shared stack, the annual start-up/shut-down emissions are included on GRP005, 1-98 No. 1 Cogeneration Unit, and GRP006, 2-98 No. 2 Cogeneration Unit. Carville Energy will demonstrate compliance with the permit limits for GRP005 and GRP006 by following the monitoring, recordkeeping, and calculation methods detailed in Section XII., Part 70 Specific Condition No. 1.

Permit PSD-LA-638(M-1) is being modified to include start-up/shut-down emissions from the Carville Energy Center. Best Available Control Technology (BACT) analysis has been performed on these operations and is included in the PSD permit.

The Carville Energy Center is also subject to the provisions of the Acid Rain Program under 40 CFR Part 72 and LAC 33:III.505.

IV. Type of Review

This permit was reviewed for compliance with 40 CFR 70, the Louisiana Air Quality Regulations, New Source Performance Standards (NSPS), and Prevention of Significant Deterioration (PSD). National Emission Standards for Hazardous Air Pollutants (NESHAP) do not apply.

This facility is a minor source of toxic air pollutants (TAPs) pursuant to LAC 33:III.Chapter 51.

The Carville Energy Center is subject to the following NSPS regulations:

NSPS – Subpart Da – Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978

NSPS – Subpart GG – Standards of Performance for Stationary Gas Turbines

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V. Credible Evidence

Notwithstanding any other provisions of any applicable rule or regulation or requirement of this permit that state specific methods that may be used to assess compliance with applicable requirements, pursuant to 40 CFR Part 70 and EPA's Credible Evidence Rule, 62 Fed. Reg. 8314 (Feb. 24, 1997), any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed shall be considered for purposes of Title V compliance certifications. Furthermore, for purposes of establishing whether or not a person has violated or is in violation of any emissions limitation or standard or permit condition, nothing in this permit shall preclude the use, including the exclusive use, by any person of any such credible evidence or information.

VI. Public Notice

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, on July 21, 2005, and on <date>; and in the *Post/South*, Plaquemine, on July 21, 2005, and on <date>. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental Services Public Notice Mailing List on July 15, 2005, and on <date>. The draft permit was also submitted to US EPA Region VI on July 14, 2005, and on <date>. Comments received on August 15, 2005 were considered prior to the final permit decision.

VII. Effects on Ambient Air

Dispersion Model(s) Used: ISCST3

Pollutant	Time Period	Calculated Maximum Ground Level Concentration	Louisiana Air Quality Standard (NAAQS)
NO _x	Annual	0.00154 µg/m ³	100 µg/m ³

VIII. General Condition XVII Activities

Work Activity	Schedule	PM ₁₀	Emission Rates - tons			
			SO ₂	NO _x	CO	VOC
-	-	-	-	-	-	-

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IX. Insignificant Activities

ID No.:	Description	Size / Maximum Operating Rate	Citation
T-1	Neutralization Tank No. 1	96,000 gals	LAC 33:III.501.B.5.D
T-2	Neutralization Tank No. 2	96,000 gals	LAC 33:III.501.B.5.D
T-3	Acid Tank	8,000 gals	LAC 33:III.501.B.5.A.4
T-4	Caustic Tank	8,000 gals	LAC 33:III.501.B.5.A.10
T-5	Bleach (12% Hypochlorite) Tank	1,800 gals	LAC 33:III.501.B.5.A.4
T-6	Bleach (12% Hypochlorite) Tank	1,800 gals	LAC 33:III.501.B.5.A.4
T-7	Bleach (12% Hypochlorite) Tank	1,800 gals	LAC 33:III.501.B.5.A.4
T-8	Polymer -- Anticorrosive Tank	1,000 gals	LAC 33:III.501.B.5.A.3
T-9	Phosphate Tank	1,500 gals	LAC 33:III.501.B.5.A.3
T-10	RO Cleanup Tank	690 gals	LAC 33:III.501.B.5.A.3
T-11	Various Chemical Totes	200 gals	LAC 33:III.501.B.5.A.2
T-12	ACW Head Tank	493 gals	LAC 33:III.501.B.5.A.3
T-13	(4) Oil & Waste Oil Poly Tanks	500 gals	LAC 33:III.501.B.5.A.3
T-14	Diesel Tank	500 gals	LAC 33:III.501.B.5.A.3
T-15	Distillate Tank	8,820 gals	LAC 33:III.501.B.5.A.3
T-16	Parts Cleaner	25 gals	LAC 33:III.501.B.5.A.2
C-1	Air Compressor	115 hp	LAC 33:III.501.B.5.D

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X. Table 1. Applicable Louisiana and Federal Air Quality Requirements

ID No.: Description		LAC 33:III. Chapter													NSPS 40 CFR 60				NESHAP 40 CFR 63				40 CFR									
		2	5	9	11	13	15	21	22	29*	51*	56	59*	A	D	Da	GG	A	Q	52	64	68	72	73	75	76	77	78				
GRP 1	Permitted Totals	1	1	1	1	1	1	1			3	1	3	1						1	2	3										
GRP 2	Acid Rain Affected Sources																															
GRP 5	1-98 No.1 Cogeneration Unit	1	1	1	1	1	1	1	2	2									1						1							
GRP 6	2-98 No. 2 Cogeneration Unit	1	1	1	1	1	1	1	2	2									1						1							
EQT 1	1-98A Gas Turbine No. 1	1	1	1	1	1	1	1		2				1		1			1													
EQT 2	2-98A Gas Turbine No. 2	1	1	1	1	1	1	1		2				1		1			1													
EQT 3	5-00 Cooling Tower	1																	3	1												
EQT 4	8-01 Fuel Gas Heater				1	1	1	1																								
EQT 5	7-01 Emergency Generator					1	1	1																								
EQT 6	1-98B HRSG Duct Burner No. 1	1	1	1	1	1	1	1			2			1		1				1												
EQT 7	2-98B HRSG Duct Burner No. 2	1	1	1	1	1	1	1			2			1		1				1												
FUG-1	5-98 Fugitive Emissions								1																							
GRP 7	Scenario 1: 1-98 SU No.1 Cogeneration Unit																															
GRP 8	Scenario 2: 1-98 SD No.1 Cogeneration Unit																															
GRP 9	Scenario 3: 1-98 NO No.1 Cogeneration Unit																															

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X. Table 1. Applicable Louisiana and Federal Air Quality Requirements																												
ID No.:	Description	LAC 33:III. Chapter										NSPS 40 CFR 60			NESHAP 40 CFR 63		40 CFR											
		2	5	9	11	13	15	21	22	29*	51*	56	59*	A	D	Da	GG	A	Q	52	64	68	72	73	75	76	77	78
GRP 10	Scenario 4: 2-98 SU No.2 Cogeneration Unit																											
GRP 11	Scenario 5: 2-98 SD No.2 Cogeneration Unit																											
GRP 12	Scenario 6: 2-98 NO No.2 Cogeneration Unit																											

* The regulations indicated above are State Only.

KEY TO MATRIX

- 1 -The regulations have applicable requirements that apply to this particular emission source.
 -The emission source may have an exemption from control stated in the regulation. The emission source may not have to be controlled but may have monitoring, recordkeeping, or reporting requirements.
- 2 -The regulations have applicable requirements that apply to this particular emission source but the source is currently exempt from these requirements due to meeting a specific criterion, such as it has not been constructed, modified or reconstructed since the regulations have been in place. If the specific criteria changes the source will have to comply at a future date.
- 3 -The regulations apply to this general type of emission source (i.e. vents, furnaces, towers, and fugitives) but do not apply to this particular emission source.

Blank – The regulations clearly do not apply to this type of emission source.

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XI. Table 2. Explanation for Exemption Status or Non-Applicability of a Source

ID No:	Requirement	Notes
GRP 1	Emission Standards for Sulfur Dioxide Continuous Emissions Monitoring [LAC 33:III.1503.C]	EXEMPT. Units emit less than 250 tons of SO ₂ per year.
	Comprehensive Toxic Air Pollutant Emission Control Program [LAC 33:III.5105.B.2]	EXEMPT. Electric utility steam-generating units are exempt from the requirements of LAC 33:III Chapter 51 Subchapter A.
	Chemical Accident Prevention and Minimization of Consequences [LAC 33:III.5901]	DOES NOT APPLY. The Carville Energy Center contains no sources which produce, handle, process, or store substances listed in LAC 5907.A Table A in quantities greater than the listed threshold.
	Compliance Assurance Monitoring [40 Part 64.2(b)(1)(iii)]	EXEMPT. The Carville Energy Center is subject to Acid Rain requirements.
GRP 5, GRP 6	Chemical Accident Prevention Provisions [40 CFR 68]	DOES NOT APPLY. The Carville Energy Center contains no sources which produce, handle, process, or store substances listed in 40 CFR 68.130 in quantities greater than the listed threshold.
	Control of Emissions of Nitrogen Oxides (NO _x) [LAC 33:III.2201.C.15]	EXEMPT. The Carville Energy Center is required to meet more stringent federal requirements and is exempt from LAC 33:III.2201.
	Comprehensive Toxic Air Pollutant Emission Control Program [LAC 33:III.5105.B.2]	EXEMPT. Electric utility steam-generating units are exempt from the requirements of LAC 33:III Chapter 51 Subchapter A.
	Comprehensive Toxic Air Pollutant Emission Control Program [LAC 33:III.5105.B.3]	EXEMPT. Emissions from the combustion of Group I virgin fossil fuels are exempt from the requirements of LAC 33:III Chapter 51 Subchapter A.
EQT 1, EQT 2, EQT 6, EQT 7	NESHAP - National Emission Standards for Hazardous Air Pollutants for Industrial Cooling Towers [40 CFR 63.400(a)]	DOES NOT APPLY. The Carville Energy Center does not use chromium based water treatment chemicals in the cooling water or cooling towers.

The above table provides explanation for both the exemption status or non-applicability of a source cited by 1, 2 or 3 in the matrix presented in Section X (Table 1) of this permit.

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XII. Part 70 Specific Conditions

1. In order to demonstrate compliance with the Maximum Potential to Emit (Max PTE) of 382.31 TPY of NO_x, 449.66 TPY of CO, and 38.22 TPY of VOC, for GRP005 - 1-98, the permittee shall perform the following monitoring and recordkeeping operations for NO_x, CO, and VOC.

1. Permittee shall monitor and record the number of hours each month that GRP005 - 1-98 operated in startup mode. Startup mode is defined as the time the unit starts combusting fuel until Mode 6Q is achieved. Mode 6Q is primarily driven by the reference temperature of the combustion turbine, which is a temperature of the exhaust of the turbine. The gas valves open when the reference temperature on the combustion turbine reaches 2,145°F. The Continuous Emission Monitor System (CEMS) has a signal for when the unit reaches Mode 6Q.

Record each month: Time (hr/mo) _{SU}

2. Permittee shall record the number of hours each month that GRP005 - 1-98 operated in shutdown mode. Shutdown mode is defined as when the unit transfers out of Mode 6Q at 2,140°F until no fuel is combusted.

Record each month: Time (hr/mo) _{SD}

3. Permittee shall calculate the total Time (hr/yr) for startup operations as the sum of the previous twelve month records for startup operations for GRP005.

Calculate: Time (hr/yr) _{SU} = Time (hr/mo) _{SU} for previous 12 months

4. Permittee shall calculate the total Time (hr/yr) for shutdown operations as the sum of the previous twelve month records for shutdown operations for GRP005.

Calculate: Time (hr/yr) _{SD} = Time (hr/mo) _{SD} for previous 12 months

5. Permittee shall calculate the total Time (hr/yr) for both startup and shutdown operations as the sum of the (a) total Time (hr/yr) for startup operations; and the (b) total Time (hr/yr) for shutdown operations.

Calculate: Time (hr/yr) _{SU/SD} = Time (hr/yr) _{SU} + Time (hr/yr) _{SD}

6. Permittee shall calculate the Reduced Time (hr/yr) for Normal Operations as the difference between the Submitted Time (hr/yr), as listed on the EIQ sheet for GRP005, and the total Time (hr/yr) for both startup and shutdown operations.

Calculate: Reduced Time (hr/yr) _{NO} = Submitted Time (hr/yr) _{EIQ} - Time (hr/yr) _{SU/SD}

7. Permittee shall calculate the Max PTE at GRP005 by summing the following three terms (a), (b), and (c). Permittee shall perform this calculation for each of the startup/shutdown pollutants, NO_x, CO, and VOC.

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Calculate: $\text{Max PTE} = (a) + (b) + (c)$

- (a) The product of the Average (lb/hr) for normal operations, submitted on the EIQ for GRP005, and the Reduced Time (hr/yr) for Normal Operations, and 1 ton/2,000 lbs;

$$(a) = (\text{Ave (lb/hr)}_{\text{EIQ}}) * (\text{Reduced Time (hr/yr)}_{\text{NO}}) * (1 \text{ ton}/2,000 \text{ lbs})$$

- (b) The product of the Maximum (lb/hr) for startup operations, submitted in the startup calculations for GRP005, and the total Time (hr/yr) for startup operations, and 1 ton/2,000 lbs;

$$(b) = (\text{Max (lb/hr)}_{\text{SU}}) * (\text{Time (hr/yr)}_{\text{SU}}) * (1 \text{ ton}/2,000 \text{ lbs})$$

- (c) The product of the Maximum (lb/hr) for shutdown operations, submitted in the shutdown calculations for GRP005, and the total Time (hr/yr) for shutdown operations, and 1 ton/2,000 lbs;

$$(c) = (\text{Max (lb/hr)}_{\text{SD}}) * (\text{Time (hr/yr)}_{\text{SD}}) * (1 \text{ ton}/2,000 \text{ lbs})$$

8. Permittee shall compare the calculated Max PTE with the permit limit for GRP005 to determine compliance with the permit limitation.

Noncompliance with this limitation of the Max PTE is a reportable violation of the permit. Notify the Office of Environmental Compliance, Enforcement Division if the calculated Max PTE (TPY) exceeds the permit limit listed in the permit. Keep records of the calculated Time (hr/yr) SU/SD and Max PTE (TPY). Make records available for inspection by DEQ personnel. Submit an annual report of the calculated Max PTE (TPY) for the preceding calendar year by the 31st of March to the Office of Environmental Compliance, Enforcement Division.

40 CFR PART 70 GENERAL CONDITIONS

- A. The term of this permit shall be five (5) years from date of issuance. An application for a renewal of this 40 CFR Part 70 permit shall be submitted to the administrative authority no later than six months prior to the permit expiration date. Should a complete permit application not be submitted six months prior to the permit expiration date, a facility's right to operate is terminated pursuant to 40 CFR Section 70.7(c)(ii). Operation may continue under the conditions of this permit during the period of the review of the application for renewal. [LAC 33:III.507.E.1, E.3, E.4, reference 40 CFR 70.6(a)(2)]
- B. The conditions of this permit are severable; and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. [Reference 40 CFR 70.6(a)(5)]
- C. Permittee shall comply with all conditions of the 40 CFR Part 70 permit. Any permit noncompliance constitutes a violation of the Clean Air Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. This permit may be modified, revoked, reopened and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition. [LAC 33:III.507.B.2, reference 40 CFR 70.6(a)(6)(i) & (iii)]
- D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [Reference 40 CFR 70.6(a)(6)(ii)]
- E. This permit does not convey any property rights of any sort, or an exclusive privilege. [Reference 40 CFR 70.6(a)(6)(iv)]
- F. The permittee shall furnish to the permitting authority, within a reasonable time, any information that the permitting authority may request in writing to determine whether cause exists for modifying, revoking, and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the permitting authority copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality. A claim of confidentiality does not relieve the permittee of the requirement to provide the information. [LAC 33:III.507.B.2, 517.F, reference 40 CFR 70.6(a)(6)(v)]
- G. Permittee shall pay fees in accordance with LAC 33:III.Chapter 2 and 40 CFR Section 70.6(a)(7). [LAC 33:III.501.C.2, reference 40 CFR 70.6(a)(7)]
- H. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the permitting authority or authorized representative to perform the following:
 - 1. enter upon the permittee's premises where a 40 CFR Part 70 source is located or emission-related activity is conducted, or where records must be kept under the conditions of the permit [LAC 33:III.507.H.2, reference 40 CFR 70.6(c)(2)(i)];
 - 2. have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit [LAC 33:III.507.H.2, reference 40 CFR 70.6(c)(2)(ii)];

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3. inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit [LAC 33:III.507.H.2, reference 40 CFR 70.6(c)(2)(iii)]; and
 4. as authorized by the Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements. [LAC 33:III.507.H.2, reference 40 CFR 70.6(c)(2)(iv)]
- I. All required monitoring data and supporting information shall be kept available for inspection at the facility or alternate location approved by the agency for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Supporting information includes calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and all reports required by the permit.
[Reference 40 CFR 70.6(a)(3)(ii)(B)]
- J. Records of required monitoring shall include the following:
1. the date, place as defined in the permit, and time of sampling or measurements;
 2. the date(s) analyses were performed;
 3. the company or entity that performed the analyses;
 4. the analytical techniques or methods used;
 5. the results of such analyses; and
 6. the operating conditions as existing at the time of sampling or measurement.
- [Reference 40 CFR 70.6(a)(3)(ii)(A)]
- K. Permittee shall submit at least semiannually, reports of any required monitoring, clearly identifying all instances of deviations from permitted monitoring requirements, certified by a responsible company official. For previously reported deviations, in lieu of attaching the individual deviation reports, the semiannual report may clearly reference the communication(s)/correspondence(s) constituting the prior report, including the date the prior report was submitted. The semiannual reports shall be submitted to the Office of Environmental Compliance, Enforcement Division by March 31 for the preceding period encompassing July through December and September 30 for the preceding period encompassing January through June. Any quarterly deviation report required to be submitted by March 31 or September 30 in accordance with Part 70 General Condition R may be consolidated with the semi-annual reports required by this general condition as long as the report clearly indicates this and all required information is included and clearly delineated in the consolidated report. [LAC 33:III.507.H, reference 40 CFR 70.6(a)(3)(iii)(A)]
- L. The permittee shall submit at least semiannual reports on the status of compliance pursuant to 40 CFR Section 70.5 (c) (8) and a progress report on any applicable schedule of compliance pursuant to 40 CFR Section 70.6 (c) (4). [LAC 33:III.507.H.1, reference 40 CFR 70.6(c)(4)]
- M. Compliance certifications per LAC 33:III.507.H.5 shall be submitted to the Administrator as well as the permitting authority. For previously reported compliance deviations, in lieu of attaching the individual deviation reports, the annual report may clearly reference the communication(s)/correspondence(s) constituting the prior report, including the date the prior report was submitted. The compliance certifications shall be submitted to the Office of Environmental Compliance, Enforcement Division by March 31 for the preceding calendar year.
[LAC 33:III.507.H.5, reference 40 CFR 70.6(c)(5)(iv)]
- N. If the permittee seeks to reserve a claim of an affirmative defense as provided in LAC 33:III.507.J.2, the permittee shall, in addition to any emergency or upset provisions in any

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applicable regulation, notify the permitting authority within 2 working days of the time when emission limitations were exceeded due to the occurrence of an upset. In the event of an upset, as defined under LAC 33:III.507.J, which results in excess emissions, the permittee shall demonstrate through properly signed, contemporaneous operating logs, or other relevant evidence that: 1) an emergency occurred and the cause was identified; 2) the permitted facility was being operated properly at the time; and 3) during the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standard or requirement of the permit. [LAC 33:III.507.J.2, reference 40 CFR 70.6(g)(3)(iv) & (i-iii)]

- O. Permittee shall maintain emissions at a level less than or equal to that provided for under the allowances that the 40 CFR Part 70 source lawfully holds under Title IV of the Clean Air Act or the regulations promulgated thereunder. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement. No limit shall be placed on the number of allowances held by the source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement. Any such allowance shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Clean Air Act. [Reference 40 CFR 70.6(a)(4)]
- P. Any permit issued pursuant to 40 CFR Part 70 may be subject to reopening prior to the expiration of the permit for any of the conditions specified in 40 CFR Section 70.7(f) or LAC 33:III.529. [LAC 33:III.529.A-B, reference 40 CFR 70.7(f)]
- Q. Permittee may request an administrative amendment to the permit to incorporate test results from compliance testing if the following criteria are met:
 - 1. the changes are a result of tests performed upon start-up of newly constructed, installed, or modified equipment or operations;
 - 2. increases in permitted emissions will not exceed five tons per year for any regulated pollutant;
 - 3. increases in permitted emissions of Louisiana toxic air pollutants or of federal hazardous air pollutants would not constitute a modification under LAC 33:III. Chapter 51 or under Section 112 (g) of the Clean Air Act;
 - 4. changes in emissions would not require new source review for prevention of significant deterioration or nonattainment and would not trigger the applicability of any federally applicable requirement;
 - 5. changes in emissions would not qualify as a significant modification; and
 - 6. the request is submitted no later than 12 months after commencing operation. [LAC 33:III.523.A, reference 40 CFR 70.7(d)]
- R. Permittee shall submit prompt reports of all permit deviations as specified below to the Office of Environmental Compliance, Enforcement Division. All such reports shall be certified by a responsible official in accordance with 40 CFR 70.5(d).
 - 1. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33:III. Chapter 39.

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2. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.
 3. A written report shall be submitted quarterly to address all permit deviations not included in paragraphs 1 or 2 above. Unless required by an applicable reporting requirement, a written report is not required during periods in which there is no deviation. The quarterly deviation reports submitted on March 31 and September 30 may be consolidated with the semi-annual reports required by Part 70 General Condition K as long as the report clearly indicates this and all required information is included and clearly delineated in the consolidated report. For previously reported permit deviations, in lieu of attaching the individual deviation reports, the quarterly report may clearly reference the communication(s)/correspondence(s) constituting the prior report, including the date the prior report was submitted. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any permit deviations occurring during the corresponding specified calendar quarter:
 - a. Report by June 30 to cover January through March
 - b. Report by September 30 to cover April through June
 - c. Report by December 31 to cover July through September
 - d. Report by March 31 to cover October through December
 4. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided such reports are certified in accordance with 40 CFR 70.5(d) and contain all information relevant to the permit deviation. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107. [Reference 40 CFR 70.6(a)(3)(iii)(B)]
- S. Permittee shall continue to comply with applicable requirements on a timely basis, and will meet on a timely basis applicable requirements that become effective during the permit term. [Reference 40 CFR 70.5(c)(8)(iii)]
- T. The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for Motor Vehicle Air Conditioners (MVACs) in Subpart B:
1. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to 40 CFR 82.156;
 2. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to 40 CFR 82.158;
 3. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to 40 CFR 82.161;
 4. Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with recordkeeping requirements pursuant to 40 CFR 82.166. ("MVAC-like appliance" as defined at 40 CFR 82.152);

40 CFR PART 70 GENERAL CONDITIONS

5. Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to 40 CFR 82.156; and
6. Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to 40 CFR 82.166. [Reference 40 CFR 82, Subpart F]

- U. If the permittee performs a service on motor (fleet) vehicles when this service involves ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.

The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or system used on passenger buses using HCFC-22 refrigerant. [Reference 40 CFR 82, Subpart B]

- V. Data availability for continuous monitoring or monitoring to collect data at specific intervals: Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including calibration checks and required zero and span adjustments), the permittee shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the emissions unit is operating. For purposes of reporting monitoring deviations under Part 70 General Conditions K and R, and unless otherwise provided for in the Specific Requirements (or Table 3) of this permit, the minimum degree of data availability shall be at least 90% (based on a monthly average) of the operating time of the emissions unit or activity being monitored. This condition does not apply to Leak Detection and Repair (LDAR) programs for fugitive emissions (e.g., 40 CFR 60 Subpart VV, 40 CFR 63 Subpart H).

LOUISIANA AIR EMISSION PERMIT GENERAL CONDITIONS

- I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.
- II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.
- III. The Emission Rates for Criteria Pollutants, Emission Rates for TAP/HAP & Other Pollutants, and Specific Requirements sections or, where included, Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Requirements or, where included, Tables 2 and 3 of the permit. The synopsis is based on the application and Emission Inventory Questionnaire dated June 10, 2004, along with supplemental information dated June 29, and December 19, 2006.
- IV. This permit shall become invalid, for the sources not constructed, if:
 - A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;
 - B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.
- V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Air Permits Division.
- VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Air Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.
- VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior approval from the Office of Environmental Assessment, Air Quality Assessment Division.

**LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS**

- VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Air Quality Assessment Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Air Quality Assessment Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.
- IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Enforcement Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.
- X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.
- XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Enforcement Division with a written report as specified below.
- A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.
- B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.
- C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs A or B above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:
1. Report by June 30 to cover January through March
 2. Report by September 30 to cover April through June
 3. Report by December 31 to cover July through September
 4. Report by March 31 to cover October through December
- D. Each report submitted in accordance with this condition shall contain the following information:
1. Description of noncomplying emission(s);
 2. Cause of noncompliance;
 3. Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
 4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
 5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.

**LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS**

- E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.
- XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:
- A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;
 - B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;
 - C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and
 - D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.
- XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.
- XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.
- XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919 as well as notification requirements specified under LAC 33:III.927.
- XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services, Air Permits Division, within ninety (90) days after the event, to amend this permit.
- XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Air Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:
- 1. Generally be less than 5 TPY
 - 2. Be less than the minimum emission rate (MER)

**LOUISIANA AIR EMISSION PERMIT
GENERAL CONDITIONS**

3. Be scheduled daily, weekly, monthly, etc., or
4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

- XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

- XIX. Certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

INVENTORIES

AI ID: 51854 - Carville Energy LLC - Carville Energy Center
Activity Number: PER20040004
Permit Number: 1280-00092-V2
Air - Title V Regular Permit Renewal

Subject Item Inventory:

ID	Description	Tank Volume	Max. Operating Rate	Normal Operating Rate	Contents	Operating Time
EQT001	1-98A Gas Turbine No. 1		1908 MM BTU/hr	1908 MM BTU/hr	Lower Heating Value (LHV)	8760 hr/yr (All Year)
EQT002	2-98A Gas Turbine No. 2		1908 MM BTU/hr	1908 MM BTU/hr	Lower Heating Value (LHV)	8760 hr/yr (All Year)
EQT003	5-00 Cooling Tower		116850 gallons/min			8760 hr/yr (All Year)
EQT004	8-01 Fuel Gas Heater		5.04 MM BTU/hr			500 hr/yr (All Year)
EQT005	7-01 Emergency Generator		2.27 MM BTU/hr			500 hr/yr (All Year)
EQT006	1-98B HRS G Duct Burner No. 1		585 MM BTU/hr	250 MM BTU/hr	8760 hr/yr @ Normal Oper Rate; 3744 hr/yr @ Maximum Oper Rate	8760 hr/yr (All Year)
EQT007	2-98B HRS G Duct Burner No. 2		585 MM BTU/hr	250 MM BTU/hr	8760 hr/yr @ Normal Oper Rate; 3744 hr/yr @ Maximum Oper Rate	8760 hr/yr (All Year)
FUG001	5-98 Fugitive Emissions				Lower Heating Value (LHV)	8760 hr/yr (All Year)

Subject Item Groups:

ID	Description	Included Components (from Above)
GRP001	Permitted Total	EQT1 1-98A Gas Turbine No. 1
GRP001	Permitted Total	EQT2 2-98A Gas Turbine No. 2
GRP001	Permitted Total	EQT3 5-00 Cooling Tower
GRP001	Permitted Total	EQT4 8-01 Fuel Gas Heater
GRP001	Permitted Total	EQT5 7-01 Emergency Generator
GRP001	Permitted Total	EQT6 1-98B HRS G Duct Burner No. 1
GRP001	Permitted Total	EQT7 2-98B HRS G Duct Burner No. 2
GRP001	Permitted Total	FUG1 5-98 Fugitive Emissions
GRP001	Permitted Total	GRP5 1-98 No. 1 Cogeneration Unit
GRP001	Permitted Total	GRP6 2-98 No. 2 Cogeneration Unit
GRP001	Permitted Total	EQT1 1-98A Gas Turbine No. 1
GRP002	Acid Rain Affected Sources	EQT2 2-98A Gas Turbine No. 2
GRP002	Acid Rain Affected Sources	EQT6 1-98B HRS G Duct Burner No. 1
GRP002	Acid Rain Affected Sources	EQT7 2-98B HRS G Duct Burner No. 2
GRP002	Acid Rain Affected Sources	EQT1 1-98A Gas Turbine No. 1
GRP005	1-98 No. 1 Cogeneration Unit	EQT6 1-98B HRS G Duct Burner No. 1
GRP005	1-98 No. 1 Cogeneration Unit	EQT2 2-98A Gas Turbine No. 2
GRP006	2-98 No. 2 Cogeneration Unit	EQT7 2-98B HRS G Duct Burner No. 2
GRP006	2-98 No. 2 Cogeneration Unit	EQT1 1-98A Gas Turbine No. 1
GRP007	Scenario 1: 1-98 SU No. 1 Cogeneration Unit	EQT6 1-98B HRS G Duct Burner No. 1
GRP007	Scenario 1: 1-98 SU No. 1 Cogeneration Unit	EQT1 1-98A Gas Turbine No. 1
GRP008	Scenario 2: 1-98 SD No. 1 Cogeneration Unit	EQT6 1-98B HRS G Duct Burner No. 1
GRP008	Scenario 2: 1-98 SD No. 1 Cogeneration Unit	EQT1 1-98A Gas Turbine No. 1
GRP009	Scenario 3: 1-98 NO No. 1 Cogeneration Unit	EQT6 1-98B HRS G Duct Burner No. 1
GRP009	Scenario 3: 1-98 NO No. 1 Cogeneration Unit	EQT1 1-98A Gas Turbine No. 1

INVENTORIES

AI ID: 51854 - Carville Energy LLC - Carville Energy Center
Activity Number: PER20040004
Permit Number: 1280-00092-V2
Air - Title V Regular Permit Renewal

Subject Item Groups:

ID	Description	Included Components (from Above)
GRP009	Scenario 3: 1-98 NO No. 1 Cogeneration Unit	EQT6 1-98B HRSG Duct Burner No. 1
GRP010	Scenario 4: 2-98 SU No. 2 Cogeneration Unit	EQT2 2-98A Gas Turbine No. 2
GRP010	Scenario 4: 2-98 SU No. 2 Cogeneration Unit	EQT7 2-98B HRSG Duct Burner No. 2
GRP011	Scenario 5: 2-98 SD No. 2 Cogeneration Unit	EQT2 2-98A Gas Turbine No. 2
GRP011	Scenario 5: 2-98 SD No. 2 Cogeneration Unit	EQT7 2-98B HRSG Duct Burner No. 2
GRP012	Scenario 6: 2-98 NO No. 2 Cogeneration Unit	EQT2 2-98A Gas Turbine No. 2
GRP012	Scenario 6: 2-98 NO No. 2 Cogeneration Unit	EQT7 2-98B HRSG Duct Burner No. 2

Relationships:

Subject Item	Relationship	Subject Item
EQT1 1-98A Gas Turbine No. 1	Vents to	GRP5 1-98 No. 1 Cogeneration Unit
EQT2 2-98A Gas Turbine No. 2	Vents to	GRP6 2-98 No. 2 Cogeneration Unit
EQT6 1-98B HRSG Duct Burner No. 1	Vents to	GRP5 1-98 No. 1 Cogeneration Unit
EQT7 2-98B HRSG Duct Burner No. 2	Vents to	GRP6 2-98 No. 2 Cogeneration Unit

Stack Information:

ID	Velocity (ft/sec)	Flow Rate (cubic ft/min-actual)	Diameter (feet)	Discharge Area (square feet)	Height (feet)	Temperature (oF)
EQT001	61.44		19.2		200	216
EQT002	61.44		19.2		200	216
EQT003	33.1			710	47	104
EQT004	38.45	45300	4		120	134.7
EQT006	61.44		19.2		200	216
EQT007	61.44		19.2		200	216
GRP005	61.44		19.2		200	216
GRP006	61.44		19.2		200	216
GRP007	61.44		19.2		200	216
GRP008	61.44		19.2		200	216
GRP009	61.44		19.2		200	216
GRP010	61.44		19.2		200	216
GRP011	61.44		19.2		200	216
GRP012	61.44		19.2		200	216

Fee Information:

Subj Item Id	Multiplier	Units Of Measure	Fee Desc
GRP001	2498.7	\$100,000	1510 - Co-Generation (Capital Cost)

EMISSION RATES FOR CRITERIA POLLUTANTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

Activity Number: PER20040004

Permit Number: 1280-00092-V2

Air - Title V Regular Permit Renewal

All phases

Subject Item	PM ₁₀			SO ₂			NOx			CO			VOC		
	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
EQT 001 1-98A		19.73			1.26			85.00			50.00			3.24	
EQT 002 2-98A		19.73			1.26			85.00			50.00			3.24	
EQT 003 5-00	1.19	1.42	5.20												
EQT 004 8-01	0.04	0.05	0.01	0.01	0.01	0.01	0.49	0.59	0.12	0.42	0.50	0.10	0.03	0.03	0.01
EQT 005 7-01	1.07	1.28	0.27	0.01	0.01	0.01	14.72	17.66	3.68	0.56	0.67	0.14	0.13	0.16	0.03
EQT 006 1-98B		4.68			0.59			46.80			46.80			6.08	
EQT 007 2-98B		4.68			0.59			46.80			46.80			6.08	
FUG 001 5-98													< 0.01	< 0.01	< 0.01
GRP 005 1-98			87.34			6.09			382.31			449.66			38.22
GRP 006 2-98			87.34			6.09			382.31			449.66			38.22
GRP 007 Scenario 1: 1-98 SU								153.20			750.53			54.33	
GRP 008 Scenario 2: 1-98 SD								51.40			271.70			16.10	
GRP 009 Scenario 3: 1-98 NO	19.94	24.41		1.39	1.85		84.28	131.80		53.42	96.80		5.43	9.32	
GRP 010 Scenario 4: 2-98 SU								153.20			750.53			54.33	
GRP 011 Scenario 5: 2-98 SD								51.40			271.70			16.10	
GRP 012 Scenario 6: 2-98 NO	19.94	24.41		1.39	1.85		84.28	131.80		53.42	96.80		5.43	9.32	

Note: Emission rates in bold are from alternate scenarios and are not included in permitted totals

Permit Phase Totals:

EMISSION RATES FOR CRITERIA POLLUTANTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

Activity Number: PER20040004

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All phases

PM10: 180.16 tons/yr
SO2: 12.18 tons/yr
NOx: 768.42 tons/yr
CO: 899.56 tons/yr
VOC: 76.48 tons/yr

Emission rates Notes:

GRP 005	PM10	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1. Which Months: All Year
GRP 005	SO2	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1. Which Months: All Year
GRP 005	NOx	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1. The Annual (TPY) emission rates represent the maximum potential to emit for the cogeneration unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates for the cogeneration unit. Which Months: All Year
GRP 005	CO	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1. The Annual (TPY) emission rates represent the maximum potential to emit for the cogeneration unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates for the cogeneration unit. Which Months: All Year
GRP 005	VOC	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1. The Annual (TPY) emission rates represent the maximum potential to emit for the cogeneration unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates for the cogeneration unit. Which Months: All Year
GRP 006	PM10	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2. Which Months: All Year
GRP 006	SO2	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2. Which Months: All Year
GRP 006	NOx	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2. The Annual (TPY) emission rates represent the maximum potential to emit for the cogeneration unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates for the cogeneration unit. Which Months: All Year
GRP 006	CO	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2. The Annual (TPY) emission rates represent the maximum potential to emit for the cogeneration unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates for the cogeneration unit. Which Months: All Year
GRP 006	VOC	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2. The Annual (TPY) emission rates represent the maximum potential to emit for the cogeneration unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates for the cogeneration unit. Which Months: All Year
GRP 007	NOx	Max lb/hr	GRP007, Scenario 1: 1-98 SU No. 1 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP005. Which Months: All Year
GRP 007	CO	Max lb/hr	GRP007, Scenario 1: 1-98 SU No. 1 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP005. Which Months: All Year
GRP 007	VOC	Max lb/hr	GRP007, Scenario 1: 1-98 SU No. 1 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP005. Which Months: All Year
GRP 008	NOx	Max lb/hr	GRP008, Scenario 2: 1-98 SD No. 1 Cogeneration Unit provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP005. Which Months: All Year
GRP 008	CO	Max lb/hr	GRP008, Scenario 2: 1-98 SD No. 1 Cogeneration Unit provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP005. Which Months: All Year
GRP 008	VOC	Max lb/hr	GRP008, Scenario 2: 1-98 SD No. 1 Cogeneration Unit provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP005. Which Months: All Year

EMISSION RATES FOR CRITERIA POLLUTANTS

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GRP 009	NOx	Max lb/hr	GRP009, Scenario 3: 1-98 NO No. 1 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP005. Start-up/shut-down emissions are not included in Scenario 3. Which Months: All Year
GRP 009	CO	Max lb/hr	GRP009, Scenario 3: 1-98 NO No. 1 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP005. Start-up/shut-down emissions are not included in Scenario 3. Which Months: All Year
GRP 009	VOC	Max lb/hr	GRP009, Scenario 3: 1-98 NO No. 1 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP005. Start-up/shut-down emissions are not included in Scenario 3. Which Months: All Year
GRP 010	NOx	Max lb/hr	GRP010, Scenario 4: 2-98 SU No. 2 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP006. Which Months: All Year
GRP 010	CO	Max lb/hr	GRP010, Scenario 4: 2-98 SU No. 2 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP006. Which Months: All Year
GRP 010	VOC	Max lb/hr	GRP010, Scenario 4: 2-98 SU No. 2 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP006. Which Months: All Year
GRP 011	NOx	Max lb/hr	GRP011, Scenario 5: 2-98 SD No. 2 Cogeneration Unit, provides Maximum (lb/hr) emissions for shut-down operations during the year for GRP006. Which Months: All Year
GRP 011	CO	Max lb/hr	GRP011, Scenario 5: 2-98 SD No. 2 Cogeneration Unit, provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP006. Which Months: All Year
GRP 011	VOC	Max lb/hr	GRP011, Scenario 5: 2-98 SD No. 2 Cogeneration Unit, provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP006. Which Months: All Year
GRP 012	NOx	Max lb/hr	GRP012, Scenario 6: 2-98 NO No. 2 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP006. Start-up/shut-down emissions are not included in Scenario 6. Which Months: All Year
GRP 012	CO	Max lb/hr	GRP012, Scenario 6: 2-98 NO No. 2 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP006. Start-up/shut-down emissions are not included in Scenario 6. Which Months: All Year
GRP 012	VOC	Max lb/hr	GRP012, Scenario 6: 2-98 NO No. 2 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP006. Start-up/shut-down emissions are not included in Scenario 6. Which Months: All Year

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center
 Activity Number: PER20040004
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 Air - Title V Regular Permit Renewal

All phases

Subject Item	Benzene			Formaldehyde			Toluene			n-Hexane		
	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year	Avg lb/hr	Max lb/hr	Tons/Year
EQT 001 1-98A		0.29			0.59			0.15			0.07	
EQT 002 2-98A		0.29			0.59			0.15			0.07	
EQT 006 1-98B		0.55			1.11			0.28			0.14	
EQT 007 2-98B		0.55			1.11			0.28			0.14	
GRP 005 1-98			2.16			4.33			1.08			0.54
GRP 006 2-98			2.16			4.33			1.08			0.54
GRP 009 Scenario 3: 1-98 NO	0.49	0.84		0.99	1.70		0.25	0.43		0.12	0.21	
GRP 012 Scenario 6: 2-98 NO	0.49	0.84		0.99	1.70		0.25	0.43		0.12	0.21	

Note: Emission rates in bold are from alternate scenarios and are not included in permitted totals

Permit Parameter Totals:

Benzene: 4.32 tons/yr
 Formaldehyde: 8.66 tons/yr
 n-Hexane: 1.08 tons/yr
 Toluene: 2.16 tons/yr

Emission Rates Notes:

GRP 005 Benzene	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1.	Which Months: All
GRP 005 Formaldehyde	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1.	Which Months: All
GRP 005 Toluene	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1.	Which Months: All
GRP 005 n-Hexane	Tons/Year	1-98 No. 1 Cogeneration Unit emissions are combined totals from 1-98A Gas Turbine No. 1 and 1-98B HRSG Duct Burners No. 1.	Which Months: All
GRP 006 Benzene	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2.	Which Months: All
GRP 006 Formaldehyde	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2.	Which Months: All

EMISSION RATES FOR TAP/HAP & OTHER POLLUTANTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center
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All phases

GRP 006	Toluene	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2.	Which Months: All
GRP 006	n-Hexane	Tons/Year	2-98 No. 2 Cogeneration Unit emissions are combined totals from 2-98A Gas Turbine No. 2 and 2-98B HRSG Duct Burners No. 2.	Which Months: All

SPECIFIC REQUIREMENTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

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Air - Title V Regular Permit Renewal

EQT001 1-98A Gas Turbine No. 1

- 1 Opacity \leq 20 percent, except during the cleaning of a fire box or building of a new fire, soot blowing or lancing, charging of an incinerator, equipment changes, ash removal or rapping of precipitators, which may have an opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes (Complies by using sweet natural gas as fuel). [LAC 33:III.1101.B]
Which Months: All Year Statistical Basis: None specified
- 2 Opacity \leq 20 percent; except emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes (Complies by using sweet natural gas as fuel). [LAC 33:III.1311.C]
Which Months: All Year Statistical Basis: Six-minute average
- 3 Equipment/operational data recordkeeping by electronic or hard copy at the approved frequency. Record and keep on site for at least two years the data required to demonstrate exemption from the provisions of LAC 33:III.Chapter 15. Record all emissions data in the units of the standard using the averaging time of the standard. Make records available to a representative of DEQ or the U.S. EPA on request. [LAC 33:III.1513]
- 4 Power Augmentation Operating time \leq 1500 hr/yr. Noncompliance with this limitation is a reportable violation of the permit. Notify the Office of Environmental Compliance, Enforcement Division if the power augmentation mode operating time exceeds the maximum listed in this specific condition for any twelve consecutive month period. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: None specified
- 5 Submit report: Due annually, by the 31st of March. Report the power augmentation mode operating time for the preceding calendar year to the Office of Environmental Compliance, Enforcement Division. [LAC 33:III.501.C.6]
- 6 Power Augmentation Operating time monitored by technically sound method continuously. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: None specified
- 7 Power Augmentation Operating time recordkeeping by electronic or hard copy monthly. Keep records of the total power augmentation mode operating time each month, as well as the total power augmentation mode operating time for the last twelve months. Make records available for inspection by DEQ personnel. [LAC 33:III.501.C.6]
- 8 Permittee shall control NOX emissions from EQT001, 1-98a Gas Turbine No. 1, included in GRP005, 1-98 No. 1 Cogeneration Unit, to less than or equal to 9 ppmv at 15% O₂ [MAX]. The NOX requirement is only applicable when the HRSG duct burners are not in operation. NOX emissions from EQT001, 1-98a Gas Turbine No. 1, during augmentation period shall not exceed more than 15 ppmv at 15% Oxygen [MAX]. Ongoing compliance with this condition shall be demonstrated by meeting the NOX tons/year limit for normal operations. The BACT limitations for NOX do not apply during start-up and shut-down operations. (Determined as BACT). [LAC 33:III.509]
- 9 Maximum Allowable Emission Rates determined in PSD-LA-638(M-2) during normal operations: ☐
PM10: 19.73 lb/hr. Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the turbines, using good combustion practices. ☐
NOX: 85.00 lb/hr. Use Dry Low NOX (DLN) combustors and burners. Maintain maximum NOX emissions to 9 ppmv 15% O₂. The NOX emissions for the combustion turbine during augmentation mode shall not exceed more than 15 ppmv at 15% O₂. ☐
CO: 50.00 lb/hr. Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen. [LAC 33:III.509]
- 10 At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 60.11(d)]
- 11 Nitrogen oxides \leq 75 ppmv at 15% oxygen and on a dry basis in gases discharged to the atmosphere. (Superseded by PSD-LA-638 limits for NOX) Subpart GG. [40 CFR 60.332(a)(1)]
Which Months: All Year Statistical Basis: None specified
- 12 Fuel sulfur content \leq 0.8 % by weight (8000 ppmw) for any fuel burned. Subpart GG. [40 CFR 60.333(b)]
Which Months: All Year Statistical Basis: None specified

SPECIFIC REQUIREMENTS

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EQT001 1-98A Gas Turbine No. 1

- 13 Oxygen and Nitrogen oxides monitored by continuous emission monitor (CEM) continuously as specified in 40 CFR 60.334(b)(1) through (b)(3). Subpart GG. [40 CFR 60.334(b)]
Which Months: All Year Statistical Basis: None specified
- 14 Oxygen and Nitrogen oxides recordkeeping by continuous emission monitor (CEM) continuously as specified in 40 CFR 60.334(b)(1) through (b)(3). Subpart GG. [40 CFR 60.334(b)]
- 15 Notwithstanding the provisions of 60.334(h)(1), the owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine if the gaseous fuel is demonstrated to meet the definition of natural gas in 60.331(u), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring. The owner or operator shall use one of the following sources of information to make the required demonstration: 1.) the gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less; or 2.) representative fuel sampling data which show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to 40 CFR 75 is required. [40 CFR 60.334(h)(3)]
- 16 Submit excess emissions reports and monitor downtime in accordance with 40 CFR 60.7(c). Report excess emissions for all periods of unit operation, including startup, shutdown and malfunction. Subpart GG. [40 CFR 60.334(j)]
- 17 Determine compliance using the test methods and procedures specified in 40 CFR 60.335(a) through (c). Subpart GG. [40 CFR 60.335]

EQT002 2-98A Gas Turbine No. 2

- 18 Opacity <= 20 percent, except during the cleaning of a fire box or building of a new fire, soot blowing or lancing, charging of an incinerator, equipment changes, ash removal or rapping of precipitators, which may have an opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes (Complies by using sweet natural gas as fuel). [LAC 33:III.1101.B]
Which Months: All Year Statistical Basis: None specified
- 19 Opacity <= 20 percent; except emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes (Complies by using sweet natural gas as fuel). [LAC 33:III.1311.C]
Which Months: All Year Statistical Basis: Six-minute average
- 20 Equipment/operational data recordkeeping by electronic or hard copy at the approved frequency. Record and keep on site for at least two years the data required to demonstrate exemption from the provisions of LAC 33:III.Chapter 15. Record all emissions data in the units of the standard using the averaging time of the standard. Make records available to a representative of DEQ or the U.S. EPA on request. [LAC 33:III.1513]
- 21 Submit report: Due annually, by the 31st of March. Report the power augmentation mode operating time for the preceding calendar year to the Office of Environmental Compliance, Enforcement Division. [LAC 33:III.501.C.6]
- 22 Power Augmentation Operating time monitored by technically sound method continuously. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: None specified
- 23 Power Augmentation Operating time recordkeeping by electronic or hard copy monthly. Keep records of the total power augmentation mode operating time each month, as well as the total power augmentation mode operating time for the last twelve months. Make records available for inspection by DEQ personnel. [LAC 33:III.501.C.6]
- 24 Power Augmentation Operating time <= 1500 hr/yr. Noncompliance with this limitation is a reportable violation of the permit. Notify the Office of Environmental Compliance, Enforcement Division if the power augmentation mode operating time exceeds the maximum listed in this specific condition for any twelve consecutive month period. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: None specified

SPECIFIC REQUIREMENTS

AIID: 51854 - Carville Energy LLC - Carville Energy Center

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EQT002 2-98A Gas Turbine No. 2

25 Permittee shall control NOX emissions from EQT002, 2-98A Gas Turbine No. 2, included in GRP006, 2-98 No. 2 Cogeneration Unit, to less than or equal to 9 ppmv at 15% O₂ [MAX]. The NOX requirement is only applicable when the HRSG duct burners are not in operation. NOX emissions from EQT002, 2-98A Gas Turbine No. 2, during augmentation period shall not exceed more than 15 ppmv at 15% Oxygen [MAX]. Ongoing compliance with this condition shall be demonstrated by meeting the NOX tons/year limit for normal operations. The BACT limitations for NOX do not apply during start-up and shut-down operations. (Determined as BACT). [LAC 33:III.509]

26 Maximum Allowable Emission Rates determined in PSD-LA-638(M-2) during normal operations: ☐

PM10: 19.73 lb/hr. Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the turbines, using good combustion practices. ☐

NOX: 85.00 lb/hr. Use Dry Low NOX (DLN) combustors and burners. Maintain maximum NOX emissions to 9 ppmv 15% O₂. The NOX emissions for the combustion turbine during augmentation mode shall not exceed more than 15 ppmv at 15% O₂. ☐

CO: 50.00 lb/hr. Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen. [LAC 33:III.509]

27 At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 60.11(d)]

28 Nitrogen oxides \leq 75 ppmv at 15% oxygen and on a dry basis in gases discharged to the atmosphere. (Superceded by PSD-LA-638 limits for NOX) Subpart GG. [40 CFR 60.332(a)(1)]

Which Months: All Year Statistical Basis: None specified

29 Fuel sulfur content \leq 0.8 % by weight (8000 ppmw) for any fuel burned. Subpart GG. [40 CFR 60.333(b)]

Which Months: All Year Statistical Basis: None specified

30 Oxygen and Nitrogen oxides monitored by continuous emission monitor (CEM) continuously as specified in 40 CFR 60.334(b)(1) through (b)(3). Subpart GG. [40 CFR 60.334(b)]

Which Months: All Year Statistical Basis: None specified

31 Oxygen and Nitrogen oxides recordkeeping by continuous emission monitor (CEM) continuously as specified in 40 CFR 60.334(b)(1) through (b)(3). Subpart GG. [40 CFR 60.334(b)]

32 Notwithstanding the provisions of 60.334(h)(1), the owner or operator may elect not to monitor the total sulfur content of the gaseous fuel combusted in the turbine if the gaseous fuel is demonstrated to meet the definition of natural gas in 60.331(u), regardless of whether an existing custom schedule approved by the administrator for subpart GG requires such monitoring. The owner or operator shall use one of the following sources of information to make the required demonstration: 1.) the gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum total sulfur content of the fuel is 20.0 grains/100 scf or less; or 2.) representative fuel sampling data which show that the sulfur content of the gaseous fuel does not exceed 20 grains/100 scf. At a minimum, the amount of fuel sampling data specified in section 2.3.1.4 or 2.3.2.4 of appendix D to 40 CFR 75 is required. [40 CFR 60.334(h)(3)]

33 Submit excess emissions reports and monitor downtime in accordance with 40 CFR 60.7(c). Report excess emissions for all periods of unit operation, including startup, shutdown and malfunction. Subpart GG. [40 CFR 60.334(j)]

34 Determine compliance using the test methods and procedures specified in 40 CFR 60.335(a) through (c). Subpart GG. [40 CFR 60.335]

EQT003 5-00 Cooling Tower

35 The following has been determined as BACT in PSD-LA-638(M-1): ☐

PM10: 1.19 lb/hr; 5.20 TPY; Use of mechanical or induced draft cooling towers through the use of drift eliminators and good operating practices. [LAC 33:III.509]

EQT004 8-01 Fuel Gas Heater

SPECIFIC REQUIREMENTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

Activity Number: PER20040004

Permit Number: 1280-00092-V2

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EQT004 8-01 Fuel Gas Heater

- 36 Opacity \leq 20 percent, except during the cleaning of a fire box or building of a new fire, soot blowing or lancing, charging of an incinerator, equipment changes, ash removal or rapping of precipitators, which may have an opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes (Complies by using sweet natural gas as fuel). [LAC 33:III.1101.B]
Which Months: All Year Statistical Basis: None specified
- 37 Total suspended particulate \leq 0.6 lb/MMBTU of heat input (Complies by using sweet natural gas as fuel). [LAC 33:III.1313.C]
Which Months: All Year Statistical Basis: None specified
- 38 Equipment/operational data recordkeeping by electronic or hard copy at the approved frequency. Record and keep on site for at least two years the data required to demonstrate exemption from the provisions of LAC 33:III.Chapter 15. Record all emissions data in the units of the standard using the averaging time of the standard. Make records available to a representative of DEQ or the U.S. EPA on request. [LAC 33:III.1513]
- 39 Submit report: Due annually, by the 31st of March. Report the operating time for the preceding calendar year to the Office of Environmental Compliance, Enforcement Division. [LAC 33:III.501.C.6]
- 40 Operating time \leq 500 hr/yr. Noncompliance with this limitation is a reportable violation of the permit. Notify the Office of Environmental Compliance, Enforcement Division if the annual hours of operation exceeds the maximum listed in this specific condition for any twelve consecutive month period. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: None specified
- 41 Operating time monitored by technically sound method continuously. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: None specified
- 42 Operating time recordkeeping by electronic or hard copy monthly. Keep records of the total operating time each month, as well as the total operating time for the last twelve months. Make records available for inspection by DEQ personnel. [LAC 33:III.501.C.6]

EQT005 7-01 Emergency Generator

- 43 Opacity \leq 20 percent; except emissions may have an average opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes. [LAC 33:III.1311.C]
Which Months: All Year Statistical Basis: Six-minute average
- 44 Equipment/operational data recordkeeping by electronic or hard copy continuously. Record and keep on site for at least two years the data required to demonstrate exemption from the provisions of LAC 33:III.Chapter 15. Record all emissions data in the units of the standard using the averaging time of the standard. Make records available to a representative of DEQ or the U.S. EPA on request. [LAC 33:III.1513]

EQT006 1-98B HRSG Duct Burner No. 1

- 45 Opacity \leq 20 percent, except during the cleaning of a fire box or building of a new fire, soot blowing or lancing, charging of an incinerator, equipment changes, ash removal or rapping of precipitators, which may have an opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes (Complies by using sweet natural gas as fuel). [LAC 33:III.1101.B]
Which Months: All Year Statistical Basis: None specified
- 46 Total suspended particulate \leq 0.6 lb/MMBTU of heat input (Complies by using sweet natural gas as fuel). [LAC 33:III.1313.C]
Which Months: All Year Statistical Basis: None specified
- 47 Equipment/operational data recordkeeping by electronic or hard copy at the approved frequency. Record and keep on site for at least two years the data required to demonstrate exemption from the provisions of LAC 33:III.Chapter 15. Record all emissions data in the units of the standard using the averaging time of the standard. Make records available to a representative of DEQ or the U.S. EPA on request. [LAC 33:III.1513]
- 48 Permittee shall install and operate low NOX burners on the Heat Recovery Steam Generators (HRSGs) to comply with the permitted emission limit for NOX. [LAC 33:III.509]

SPECIFIC REQUIREMENTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

Activity Number: PER20040004

Permit Number: 1280-00092-V2

Air - Title V Regular Permit Renewal

EQT006 1-98B HRSG Duct Burner No. 1

- 49 Maximum Allowable Emission Rates determined in PSD-LA-638(M-2) during normal operations: ☐
PM10: 4.68 lb/hr; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the burners, using good combustion practices. ☐
NOX: 46.80 lb/hr; Use Dry Low NOX (DLN) combustors and burners. ☐
CO: 46.80 lb/hr; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen. ☐
[LAC 33:III.509]
- 50 At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 60.11(d)]
- 51 Particulate matter (10 microns or less) \leq 0.03 lb/MMBTU (13 ng/J) heat input. Subpart Da. [40 CFR 60.42Da(a)(1)]
Which Months: All Year Statistical Basis: None specified
- 52 Opacity \leq 20 percent, except for one 6-minute period per hour of not more than 27% opacity. Subpart Da. [40 CFR 60.42Da(b)]
Which Months: All Year Statistical Basis: Six-minute average
- 53 Sulfur dioxide: 100 percent of the potential combustion concentration (zero percent reduction) when emissions are less than 86 ng/J (0.2 lb/million BTU) heat input. Subpart Da. [40 CFR 60.43Da(b)(2)]
- 54 Nitrogen oxides \leq 1.6 lb/MWh (200 ng/J) gross energy output. Subpart Da. [40 CFR 60.44Da(d)(1)]
Which Months: All Year Statistical Basis: Thirty-day rolling average
- 55 Apply to DEQ for a commercial demonstration permit when proposing to demonstrate an emerging technology. Subpart Da. [40 CFR 60.47Da(a)]
- 56 Comply with the particulate matter emission standards under 40 CFR 60.42Da at all times except during periods of startup, shutdown, or malfunction. Subpart Da. [40 CFR 60.48Da(c)]
- 57 Comply with the nitrogen oxides emission standards under 40 CFR 60.44Da at all times except during periods of startup, shutdown, and malfunction. Subpart Da. [40 CFR 60.48Da(c)]
- 58 During emergency conditions in the principal company, do not operate an affected facility with a malfunctioning flue gas desulfurization system unless sulfur dioxide emissions are minimized in accordance with the requirements of 60.48Da(d)(1) through (d)(3). Subpart Da. [40 CFR 60.48Da(d)]
- 59 Show compliance with the sulfur dioxide standards by completing a separate performance test at the end of each boiler operating day after the initial performance test, and calculating a new 30-day average emission rate and percent reduction. Subpart Da. [40 CFR 60.48Da(e)]
- 60 Show compliance with the nitrogen oxides standards by completing a separate performance test at the end of each boiler operating day after the initial performance test, and calculating a new 30-day average emission rate. Subpart Da. [40 CFR 60.48Da(e)]
- 61 Schedule the initial performance test so that the first boiler operating day of the 30 successive boiler operating days is completed within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility. Subpart Da. [40 CFR 60.48Da(f)]
- 62 Determine compliance with the NOx and SO2 emission standards by calculating the arithmetic average of all hourly emission rates for SO2 and NOx for the 30 successive boiler operating days, except for data obtained during startup, shutdown, malfunction (NOx only), or emergency conditions (SO2 only). Subpart Da. [40 CFR 60.48Da(g)]
- 63 Calculate NOx emissions by multiplying the average hourly NOx output concentration, measured according to the provisions of 40 CFR 60.49Da(c), by the average hourly flow rate, measured according to the provisions of 40 CFR 60.49Da(l), and divided by the average hourly gross energy output, measured according to the provisions of 40 CFR 60.49Da(k). Subpart Da. [40 CFR 60.48Da(i)]
- 64 Determine compliance with the applicable NOx emissions limits by measuring the emissions combined with the emissions from the other unit(s) utilizing the common steam turbine; OR develop, demonstrate, and provide information satisfactory to DEQ on methods for apportioning the combined gross energy output from the steam turbine for each of the affected duct burners. Subpart Da. [40 CFR 60.48Da(k)(3)]
- 65 Determine compliance with the emission limits for NOx required by 40 CFR 60.44Da(d)(1) by using either of the procedures specified in 40 CFR 60.48Da(k)(1) and (k)(2). Subpart Da. [40 CFR 60.48Da(k)]

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EQT006 1-98B HRSG Duct Burner No. 1

- 66 If the owner or operator has installed a NOx CEMS to meet the requirements of 40 CFR part 75 and is continuing to meet the ongoing requirements of part 75, that CEMS may be used to meet the requirements of 60.49Da, except that the owner or operator shall also meet the requirements of 60.51Da. Data reported to meet the requirements of 60.51Da shall not include data substituted using the missing data procedures in subpart D of part 75, nor shall the data have been bias adjusted according to the procedures of part 75. Subpart Da. [40 CFR 60.49Da(c)(2)]
- 67 Obtain emission data for at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, supplement emission data with other monitoring systems approved by DEQ or the reference methods and procedures as described in 40 CFR 60.49Da(h). Subpart Da. [40 CFR 60.49Da(f)]
- 68 The owner or operator of a duct burner, as described in 40 CFR 60.41Da, which is subject to the NOx standards of 40 CFR 60.44Da(a)(1), (d)(1), or (e)(1) is not required to install or operate a continuous emission monitoring system to measure NOx emissions; a wattmeter to measure gross electrical output; meters to measure steam flow, temperature, and pressure; and a continuous flow monitoring system to measure the flow of exhaust gases discharged to the atmosphere. Subpart Da. [40 CFR 60.49Da(o)]
- 69 Use as reference methods and procedures the methods specified in 40 CFR 60Da, Appendix A or the methods and procedures as specified in 40 CFR 60.50Da, except as provided in 40 CFR 60.8(b), in conducting the performance tests required in 40 CFR 60.8. Subpart Da. [40 CFR 60.50Da(a)]
- 70 Determine compliance with the particulate matter standards in 40 CFR 60.42Da using the methods and procedures specified in 40 CFR 60.50Da(b)(1) through (b)(3). Subpart Da. [40 CFR 60.50Da(b)]
- 71 Determine compliance with the sulfur dioxide standards in 40 CFR 60.43Da using the methods and procedures specified in 40 CFR 60.50Da(c)(1) through (c)(5). Subpart Da. [40 CFR 60.50Da(c)]
- 72 Determine compliance with the nitrogen oxides standard in 40 CFR 60.44Da using the methods and procedures specified in 40 CFR 60.50Da(d)(1) and (d)(2). Subpart Da. [40 CFR 60.50Da(d)]
- 73 Submit the performance test data from the initial performance test and from the performance evaluation of the continuous monitors (including the transmissometer). Subpart Da. [40 CFR 60.51Da(a)]
- 74 Submit a signed statement if any standards under 40 CFR 60.43Da are exceeded during emergency conditions because of control system malfunction. Indicate if emergency conditions existed and requirements under 40 CFR 60.48Da(d) were met during each period. List the time periods the emergency condition existed; the electrical output and demand on the electric utility system and the affected facility; the amount of power purchased from interconnected neighboring utility companies during the emergency period; the percent reduction in emissions achieved; the atmospheric emission rate (ng/J) of the pollutant discharged; and the actions taken to correct control system malfunction. Submit semiannually for each six-month period. Subpart Da. [40 CFR 60.51Da(d)]

EQT007 2-98B HRSG Duct Burner No. 2

- 75 Opacity \leq 20 percent, except during the cleaning of a fire box or building of a new fire, soot blowing or lancing, charging of an incinerator, equipment changes, ash removal or rapping of precipitators, which may have an opacity in excess of 20 percent for not more than one six-minute period in any 60 consecutive minutes (Complies by using sweet natural gas as fuel). [LAC 33:III.1101.B]
- Which Months: All Year Statistical Basis: None specified
- 76 Total suspended particulate \leq 0.6 lb/MMBTU of heat input (Complies by using sweet natural gas as fuel). [LAC 33:III.1313.C]
- Which Months: All Year Statistical Basis: None specified
- 77 Equipment/operational data recordkeeping by electronic or hard copy continuously. Record and keep on site for at least two years the data required to demonstrate exemption from the provisions of LAC 33:III.Chapter 15. Record all emissions data in the units of the standard using the averaging time of the standard. Make records available to a representative of DEQ or the U.S. EPA on request. [LAC 33:III.1513]
- 78 Permittee shall install and operate low NOx burners on the Heat Recovery Steam Generators (HRSGs) to comply with the permitted emission limit for NOx. [LAC 33:III.509]

SPECIFIC REQUIREMENTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

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Air - Title V Regular Permit Renewal

EQT007 2-98B HRSG Duct Burner No. 2

79 Maximum Allowable Emission Rates determined in PSD-LA-638(M-2) during normal operations: ☐

PM10: 4.68 lb/hr; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the burners, using good combustion practices. ☐
NOX: 46.80 lb/hr; Use Dry Low NOX (DLN) combustors and burners. ☐

CO: 46.80 lb/hr; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen. [LAC 33:III.509]
80 At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR 60.11(d)]

81 Particulate matter (10 microns or less) \leq 0.03 lb/MMBTU (13 ng/J) heat input. Subpart Da. [40 CFR 60.42Da(a)(1)]

Which Months: All Year Statistical Basis: None specified

82 Opacity \leq 20 percent, except for one 6-minute period per hour of not more than 27% opacity. Subpart Da. [40 CFR 60.42Da(b)]

Which Months: All Year Statistical Basis: Six-minute average

83 Sulfur dioxide: 100 percent of the potential combustion concentration (zero percent reduction) when emissions are less than 86 ng/J (0.2 lb/million BTU) heat input. Subpart Da. [40 CFR 60.43Da(b)(2)]

84 Nitrogen oxides \leq 1.6 lb/MWh (200 ng/J) gross energy output. Subpart Da. [40 CFR 60.44Da(d)(1)]

Which Months: All Year Statistical Basis: Thirty-day rolling average

85 Apply to DEQ for a commercial demonstration permit when proposing to demonstrate an emerging technology. Subpart Da. [40 CFR 60.47Da(a)]

86 Comply with the particulate matter emission standards under 40 CFR 60.42Da at all times except during periods of startup, shutdown, or malfunction. Subpart Da. [40 CFR 60.48Da(c)]

87 Comply with the nitrogen oxides emission standards under 40 CFR 60.44Da at all times except during periods of startup, shutdown, and malfunction. Subpart Da. [40 CFR 60.48Da(c)]

88 During emergency conditions in the principal company, do not operate an affected facility with a malfunctioning flue gas desulfurization system unless sulfur dioxide emissions are minimized in accordance with the requirements of 60.48Da(d)(1) through (d)(3). Subpart Da. [40 CFR 60.48Da(d)]

89 Show compliance with the sulfur dioxide standards by completing a separate performance test at the end of each boiler operating day after the initial performance test, and calculating a new 30-day average emission rate and percent reduction. Subpart Da. [40 CFR 60.48Da(e)]

90 Show compliance with the nitrogen oxides standards by completing a separate performance test at the end of each boiler operating day after the initial performance test, and calculating a new 30-day average emission rate. Subpart Da. [40 CFR 60.48Da(e)]

91 Schedule the initial performance test so that the first boiler operating day of the 30 successive boiler operating days is completed within 60 days after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup of the facility. Subpart Da. [40 CFR 60.48Da(f)]

92 Determine compliance with the NOx and SO2 emission standards by calculating the arithmetic average of all hourly emission rates for SO2 and NOx for the 30 successive boiler operating days, except for data obtained during startup, shutdown, malfunction (NOx only), or emergency conditions (SO2 only). Subpart Da. [40 CFR 60.48Da(g)]

93 Calculate NOx emissions by multiplying the average hourly NOx output concentration, measured according to the provisions of 40 CFR 60.49Da(c), by the average hourly flow rate, measured according to the provisions of 40 CFR 60.49Da(l), and divided by the average hourly gross energy output, measured according to the provisions of 40 CFR 60.49Da(k). Subpart Da. [40 CFR 60.48Da(i)]

94 Determine compliance with the applicable NOx emissions limits by measuring the emissions combined with the emissions from the other unit(s) utilizing the common steam turbine; OR develop, demonstrate, and provide information satisfactory to DEQ on methods for apportioning the combined gross energy output from the steam turbine for each of the affected duct burners. Subpart Da. [40 CFR 60.48Da(k)(3)]

95 Determine compliance with the emission limits for NOx required by 40 CFR 60.44Da(d)(1) by using either of the procedures specified in 40 CFR 60.48Da(k)(1) and (k)(2). Subpart Da. [40 CFR 60.48Da(k)]

SPECIFIC REQUIREMENTS

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Air - Title V Regular Permit Renewal

EQT007 2-98B HRSR Duct Burner No. 2

- 96 If the owner or operator has installed a NOx CEMS to meet the requirements of 40 CFR part 75 and is continuing to meet the ongoing requirements of part 75, that CEMS may be used to meet the requirements of 60.49Da, except that the owner or operator shall also meet the requirements of 60.51Da. Data reported to meet the requirements of 60.51Da shall not include data substituted using the missing data procedures in subpart D of part 75, nor shall the data have been bias adjusted according to the procedures of part 75. Subpart Da. [40 CFR 60.49Da(c)(2)]
- 97 Obtain emission data for at least 18 hours in at least 22 out of 30 successive boiler operating days. If this minimum data requirement cannot be met with a continuous monitoring system, supplement emission data with other monitoring systems approved by DEQ or the reference methods and procedures as described in 40 CFR 60.49Da(h). Subpart Da. [40 CFR 60.49Da(f)]
- 98 The owner or operator of a duct burner, as described in 40 CFR 60.41Da, which is subject to the NOx standards of 40 CFR 60.44Da(a)(1), (d)(1), or (e)(1) is not required to install or operate a continuous emission monitoring system to measure NOx emissions; a wattmeter to measure gross electrical output; meters to measure steam flow, temperature, and pressure; and a continuous flow monitoring system to measure the flow of exhaust gases discharged to the atmosphere. Subpart Da. [40 CFR 60.49Da(o)]
- 99 Use as reference methods and procedures the methods specified in 40 CFR 60Da, Appendix A or the methods and procedures as specified in 40 CFR 60.50Da, except as provided in 40 CFR 60.8(b), in conducting the performance tests required in 40 CFR 60.8. Subpart Da. [40 CFR 60.50Da(a)]
- 100 Determine compliance with the particulate matter standards in 40 CFR 60.42Da using the methods and procedures specified in 40 CFR 60.50Da(b)(1) through (b)(3). Subpart Da. [40 CFR 60.50Da(b)]
- 101 Determine compliance with the sulfur dioxide standards in 40 CFR 60.43Da using the methods and procedures specified in 40 CFR 60.50Da(c)(1) through (c)(5). Subpart Da. [40 CFR 60.50Da(c)]
- 102 Determine compliance with the nitrogen oxides standard in 40 CFR 60.44Da using the methods and procedures specified in 40 CFR 60.50Da(d)(1) and (d)(2). Subpart Da. [40 CFR 60.50Da(d)]
- 103 Submit the performance test data from the initial performance test and from the performance evaluation of the continuous monitors (including the transmissometer). Subpart Da. [40 CFR 60.51Da(a)]
- 104 Submit a signed statement if any standards under 40 CFR 60.43Da are exceeded during emergency conditions because of control system malfunction. Indicate if emergency conditions existed and requirements under 40 CFR 60.48Da(d) were met during each period. List the time periods the emergency condition existed; the electrical output and demand on the electric utility system and the affected facility; the amount of power purchased from interconnected neighboring utility companies during the emergency period; the percent reduction in emissions achieved; the atmospheric emission rate (ng/l) of the pollutant discharged; and the actions taken to correct control system malfunction. Submit semiannually for each six-month period. Subpart Da. [40 CFR 60.51Da(d)]

FUG001 5-98 Fugitive Emissions

- 105 Equip all rotary pumps and compressors handling volatile organic compounds having a true vapor pressure of 1.5 psia or greater at handling conditions with mechanical seals or other equivalent equipment. [LAC 33:III.2111]

GRP001 Permitted Total

- 106 Emissions of smoke which pass onto or across a public road and create a traffic hazard by impairment of visibility as defined in LAC 33:III.111 or intensify an existing traffic hazard condition are prohibited. [LAC 33:III.1103]
- 107 Emissions of particulate matter which pass onto or across a public road and create a traffic hazard by impairment of visibility or intensify an existing traffic hazard condition are prohibited. [LAC 33:III.1303.B]
- 108 Maintain best practical housekeeping and maintenance practices at the highest possible standards to reduce the quantity of organic compounds emissions. Good housekeeping shall include, but not be limited to, the practices listed in LAC 33:III.2113.A.1-5. [LAC 33:III.2113.A]

SPECIFIC REQUIREMENTS

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GRP001 **Permitted Total**

- 109 Failure to pay the prescribed application fee or annual fee as provided herein, within 90 days after the due date, will constitute a violation of these regulations and shall subject the person to applicable enforcement actions under the Louisiana Environmental Quality Act including, but not limited to, revocation or suspension of the applicable permit, license, registration, or variance. [LAC 33:III.219]
- 110 Carbon monoxide ≤ 899.56 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 111 Nitrogen oxides ≤ 768.42 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 112 Particulate matter (10 microns or less) ≤ 180.16 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 113 Sulfur dioxide ≤ 12.18 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 114 VOC, Total ≤ 76.48 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 115 n-Hexane ≤ 1.08 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 116 Formaldehyde ≤ 8.66 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 117 Benzene ≤ 4.32 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 118 Toluene ≤ 2.16 tons/yr. [LAC 33:III.501.C.6]
Which Months: All Year Statistical Basis: Annual maximum
- 119 Comply with the requirements of PSD-LA-638(M-2). This permit includes provisions of the Prevention of Significant Deterioration (PSD) review from Permit PSD-LA-638(M-2). [LAC 33:III.509]
- 120 Activate the preplanned abatement strategy listed in LAC 33:III.5611.Table 5 when the administrative authority declares an Air Pollution Alert. [LAC 33:III.5609.A.1.b]
- 121 Activate the preplanned strategy listed in LAC 33:III.5611.Table 6 when the administrative authority declares an Air Pollution Warning. [LAC 33:III.5609.A.2.b]
- 122 Activate the preplanned abatement strategy listed in LAC 33:III.5611.Table 7 when the administrative authority declares an Air Pollution Emergency. [LAC 33:III.5609.A.3.b]
- 123 Prepare standby plans for the reduction of emissions during periods of Air Pollution Alert, Air Pollution Warning and Air Pollution Emergency. Design standby plans to reduce or eliminate emissions in accordance with the objectives as set forth in LAC 33:III.5611.Tables 5, 6, and 7. [LAC 33:III.5609.A]
- 124 Submit Emission Inventory (EI)/Annual Emissions Statement: Due annually, by the 31st of March for the period January 1 to December 31 of the previous year. Submit emission inventory data in the format specified by the Office of Environmental Assessment, Environmental Evaluation Division. Include all data applicable to the emissions source(s), as specified in LAC 33:III.919.A-D. [LAC 33:III.919.D]
- 125 All affected facilities shall comply with all applicable provisions in 40 CFR 60 Subpart A. [40 CFR 60]
- 126 Submit Title V permit application for renewal: Due 180 calendar days before permit expiration date. [40 CFR 70.5(a)(1)(iii)]
- 127 Submit Title V monitoring results report: Due semiannually, by March 31st and September 30th for the preceding periods encompassing July through December and January through June, respectively. Submit reports to the Office of Environmental Compliance, Surveillance Division. Certify reports by a responsible company official. Clearly identify all instances of deviations from permitted monitoring requirements. For previously reported deviations, in lieu of attaching the individual deviation reports, clearly reference the communication(s)/correspondence(s) constituting the prior report, including the date the prior report was submitted. [40 CFR 70.6(a)(3)(iii)(A)]

SPECIFIC REQUIREMENTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

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GRP001 Permitted Total

- 128 Submit Title V excess emissions report: Due quarterly, by June 30, September 30, December 31, March 31. Submit reports of all permit deviations to the Office of Environmental Compliance, Surveillance Division. Certify all reports by a responsible official in accordance with 40 CFR 70.5(d). The reports submitted on March 31 and September 30 may be consolidated with the semi-annual reports required by 40 CFR 70.6(a)(3)(iii)(A) as long as the report clearly indicates this and all required information is included and clearly delineated in the consolidated report. [40 CFR 70.6(a)(3)(iii)(B)]
- 129 Submit Title V compliance certification: Due annually, by the 31st of March. Submit to the Office of Environmental Compliance, Surveillance Division. [40 CFR 70.6(c)(5)(iv)]

GRP002 Acid Rain Affected Sources

- 130 The designated representative shall submit a complete Acid Rain permit application (including a compliance plan) in accordance with the deadlines specified in 40 CFR 72.30, a complete reduced utilization plan if required under 40 CFR 72.43, and any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit. [LAC 33:III.505, 40 CFR 72.9(a)(1)]
- 131 Operate the unit in compliance with a complete Acid Rain permit application or a superseding Acid Rain permit issued by the permitting authority, and have an Acid Rain Permit. [LAC 33:III.505, 40 CFR 72.9(a)(2)]
- 132 Comply with the monitoring requirements as provided in 40 CFR 75. [LAC 33:III.505, 40 CFR 72.9(b)]
- 133 The owners and operators shall hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit and comply with the applicable Acid Rain emissions limitation for sulfur dioxide. [LAC 33:III.505, 40 CFR 72.9(c)(1)]
- 134 An allowance shall not be deducted, in order to comply with the requirements under 40 CFR 72.9(c)(1)(i), prior to the calendar year for which the allowance was allocated. [LAC 33:III.505, 40 CFR 72.9(c)(5)]
- 135 The designated representative of an affected unit that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR 77. [LAC 33:III.505, 40 CFR 72.9(e)(1)]
- 136 The owners and operators of an affected unit that has excess emissions in any calendar year shall pay without demand the penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR 77, and comply with the terms of an approved offset plan, as required by 40 CFR 77. [LAC 33:III.505, 40 CFR 72.9(e)(2)]
- 137 Keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority. ☐
- 1.) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24, provided that the certificate and documents shall be retained on site at the source beyond such 5-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative. ☐
- 2.) All emissions monitoring information, in accordance with 40 CFR 75, provided that to the extent that part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply. ☐
- 3.) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program. ☐
- 4.) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program. [LAC 33:III.505, 40 CFR 72.9(f)(1)]
- 138 The designated representative shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR 75 and Subpart I of 40 CFR 72. [LAC 33:III.505, 40 CFR 72.9(g)(2)]

SPECIFIC REQUIREMENTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

Activity Number: PER20040004

Permit Number: 1280-00092-V2

Air - Title V Regular Permit Renewal

GRP002 Acid Rain Affected Sources

- 139 To determine NOX emissions, install, certify, operate, and maintain in accordance with all the requirements of 40 CFR 75 a NOX-diluent continuous emission monitoring system (consisting of a NOX pollutant concentration monitor and an O2 or CO2 diluent gas monitor) with an automated data acquisition and handling system for measuring and recording NOX concentration (in ppm), O2 or CO2 concentration (in percent O2 or CO2), and NOX emission rate (in lb/MMBtu) discharged to the atmosphere, except as provided in 40 CFR 75.12 and 75.17 and subpart E of 40 CFR 75. The owner or operator shall account for total NOX emissions, both NO and NO2, either by monitoring for both NO and NO2 or by monitoring for NO only and adjusting the emissions data to account for NO2. [40 CFR 75.10(a)(2)]
- 140 Determine CO2 emissions by using one of the options in 40 CFR 75.10(a)(3)(i), (ii), or (iii), except as provided in 40 CFR 75.13 and subpart E of 40 CFR 75. [40 CFR 75.10(a)(3)]
- 141 The owner or operator shall ensure that each continuous emission monitoring system meets the equipment, installation, and performance specifications in appendix A to 40 CFR 75; and is maintained according to the quality assurance and quality control procedures in appendix B to 40 CFR 75; and shall record SO2 and NOX emissions in the appropriate units of measurement (i.e., lb/hr for SO2 and lb/MM Btu for NOX). [40 CFR 75.10(b)]
- 142 The owner or operator shall determine and record the heat input rate, in units of MMBtu/hr, to each affected unit for every hour or part of an hour any fuel is combusted following the procedures in appendix F to 40 CFR 75. [40 CFR 75.10(c)]
- 143 The owner or operator shall ensure that all continuous emission and opacity monitoring systems are in operation and monitoring unit emissions or opacity at all times that the affected unit combusts any fuel except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and appendix B of 40 CFR 75, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20. The owner or operator shall also ensure, subject to the aforementioned exceptions, that all continuous opacity monitoring systems are in operation and monitoring opacity during the time following combustion when fans are still operating, unless fan operation is not required to be included under any other applicable Federal or State regulation, or permit. The owner or operator shall ensure that the requirements of 40 CFR 75.10(d)(1), (2), and (3), as applicable, are met. [40 CFR 75.10(d)]
- 144 The owner or operator shall ensure that each continuous emission monitoring system is capable of accurately measuring, recording, and reporting data, and shall not incur an exceedance of the full scale range, except as provided in sections 2.1.1.5, 2.1.2.5, and 2.1.4.3 of appendix A to 40 CFR 75. [40 CFR 75.10(f)]
- 145 The owner or operator shall record and the designated representative shall report the hourly, daily, quarterly, and annual information collected under the requirements of 40 CFR 75 as specified in subparts F and G of 40 CFR 75. [40 CFR 75.10(g)]
- 146 Measure and record SO2 emissions by providing information satisfactory to the Administrator using the applicable procedures specified in appendix D to 40 CFR 75 for estimating hourly SO2 mass emissions. [40 CFR 75.11(d)(2)]
- 147 Comply with the applicable provisions of Subpart C-Operation and Maintenance Requirements, Subpart D-Missing Data Substitution Procedures, Subpart F-Recordkeeping Requirements, and Subpart G-Reporting Requirements. [40 CFR 75]

GRP005 1-98 No. 1 Cogeneration Unit

- 148 Permittee shall demonstrate compliance with the opacity emission limits of this permit by visually inspecting GRP005, 1-98 No. 1 Cogeneration Unit, for visible emissions on a daily basis. If visible emissions are detected, then, within three (3) working days, the permittee shall conduct a six minute opacity reading in accordance with EPA Reference Method 9. Records of opacity checks - including data and time of the check, emission unit ID, operational status of the emission unit, observed results and conclusion, and any Method 9 results, shall be kept on site and available for inspection by the Office of Environmental Compliance, Surveillance Division. [LAC 33:III.501.C.6]
- 149 Permittee shall demonstrate compliance with the permitted emission limits of this permit by performing stack tests on the EQT001, 1-98A Gas Turbine No. 1, and EQT006, 1-98B HRSG Duct Burner No. 1, on GRP005, 1-98 No. 1 Cogeneration Unit, using methods found in 40 CFR 60, Appendix A as follows:□
- A. Sulfur Dioxide by Method 6 - Determination of Sulfur Dioxide Emissions from Stationary Sources.□
- B. VOC by Method 25A or 25B - Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer or Nondispersive Infrared Analyzer□
- The gas turbines shall be tested at maximum capacity without the duct burners, and then the gas turbines shall be tested with the duct burners. Emissions from the duct burners will be calculated from the differences between the tests. [LAC 33:III.507.H.1]

SPECIFIC REQUIREMENTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

Activity Number: PER20040004

Permit Number: 1280-00092-V2

Air - Title V Regular Permit Renewal

GRP005 1-98 No. 1 Cogeneration Unit

150 Permittee shall demonstrate compliance with the permitted emission limits of this permit by performing stack tests on the EQT001, 1-98A Gas Turbine No. 1, and EQT006, 1-98B HRSG Duct Burner No. 1, on GRP005, 1-98 No. 1 Cogeneration Unit, using methods found in 40 CFR 60, Appendix A as follows: ☐

A. NOx by Method 20 - Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines. ☐

B. Carbon Monoxide by Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources. ☐

C. Particulate Matter by Method 5 - Determination of Particulate Emissions from Stationary Sources. ☐

The gas turbines shall be tested at maximum capacity without the duct burners, and then the gas turbines shall be tested with the duct burners. Emissions from the duct burners will be calculated from the differences between the tests. [LAC 33:III.509]

151 The owner or operator shall ensure that all continuous emission and opacity monitoring systems are in operation and monitoring unit emissions or opacity at all times that the affected unit combusts any fuel except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and appendix B of 40 CFR 75, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20. The owner or operator shall also ensure, subject to the aforementioned exceptions, that all continuous opacity monitoring systems are in operation and monitoring opacity during the time following combustion when fans are still operating, unless fan operation is not required to be included under any other applicable Federal or State regulation, or permit. The owner or operator shall ensure that the requirements of 40 CFR 75.10(d)(1), (2), and (3), as applicable, are met. [40 CFR 75.10(d)]

GRP006 2-98 No. 2 Cogeneration Unit

152 Permittee shall demonstrate compliance with the opacity emission limits of this permit by visually inspecting GRP006, 2-98 No. 2 Cogeneration Unit, for visible emissions on a daily basis. If visible emissions are detected, then, within three (3) working days, the permittee shall conduct a six minute opacity reading in accordance with EPA Reference Method 9. Records of opacity checks - including data and time of the check, emission unit ID, operational status of the emission unit, observed results and conclusion, and any Method 9 results, shall be kept on site and available for inspection by the Office of Environmental Compliance, Surveillance Division. [LAC 33:III.501.C.6]

153 Permittee shall demonstrate compliance with the permitted emission limits of this permit by performing stack tests on the EQT002, 2-98A Gas Turbine No. 2, and EQT007, 2-98B HRSG Duct Burner No. 2, on GRP006, 2-98 No. 2 Cogeneration Unit, using methods found in 40 CFR 60, Appendix A as follows: ☐

A. Sulfur Dioxide by Method 6 - Determination of Sulfur Dioxide Emissions from Stationary Sources. ☐

B. VOC by Method 25A or 25B - Determination of Total Gaseous Organic Concentration using a Flame Ionization Analyzer or Nondispersive Infrared Analyzer ☐

The gas turbines shall be tested at maximum capacity without the duct burners, and then the gas turbines shall be tested with the duct burners. Emissions from the duct burners will be calculated from the differences between the tests. [LAC 33:III.507.H.1]

154 Permittee shall demonstrate compliance with the permitted emission limits of this permit by performing stack tests on the EQT002, 2-98A Gas Turbine No. 2, and EQT007, 2-98B HRSG Duct Burner No. 2, on GRP006, 2-98 No. 2 Cogeneration Unit, using methods found in 40 CFR 60, Appendix A as follows: ☐

A. NOx by Method 20 - Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines. ☐

B. Carbon Monoxide by Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources. ☐

C. Particulate Matter by Method 5 - Determination of Particulate Emissions from Stationary Sources. ☐

The gas turbines shall be tested at maximum capacity without the duct burners, and then the gas turbines shall be tested with the duct burners. Emissions from the duct burners will be calculated from the differences between the tests. [LAC 33:III.509]

155 The owner or operator shall ensure that all continuous emission and opacity monitoring systems are in operation and monitoring unit emissions or opacity at all times that the affected unit combusts any fuel except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and appendix B of 40 CFR 75, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20. The owner or operator shall also ensure, subject to the aforementioned exceptions, that all continuous opacity monitoring systems are in operation and monitoring opacity during the time following combustion when fans are still operating, unless fan operation is not required to be included under any other applicable Federal or State regulation, or permit. The owner or operator shall ensure that the requirements of 40 CFR 75.10(d)(1), (2), and (3), as applicable, are met. [40 CFR 75.10(d)]

SPECIFIC REQUIREMENTS

AI ID: 51854 - Carville Energy LLC - Carville Energy Center

Activity Number: PER20040004

Permit Number: 1280-00092-V2

Air - Title V Regular Permit Renewal

GRP007 Scenario 1: 1-98 SU No. 1 Cogeneration Unit

156 Maximum Allowable Emission Rates determined in PSD-LA-638(M-2). ☐

Determined as BACT. ☐

NOX: 153.2 lb/hr; Use Dry Low NOX (DLN) combustor technology and good operating practices. ☐

CO: 750.53 lb/hr; Good engineering practice and combustion control. ☐

VOC: 54.33 lb/hr; Good engineering practice and combustion control. [LAC 33:III.509]

GRP008 Scenario 2: 1-98 SD No. 1 Cogeneration Unit

157 Maximum Allowable Emission Rates determined in PSD-LA-638(M-2). ☐

Determined as BACT. ☐

NOX: 51.4 lb/hr; Use Dry Low NOX (DLN) combustor technology and good operating practices. ☐

CO: 271.7 lb/hr; Good engineering practice and combustion control. ☐

VOC: 16.1 lb/hr; Good engineering practice and combustion control. [LAC 33:III.509]

GRP010 Scenario 4: 2-98 SU No. 2 Cogeneration Unit

158 Maximum Allowable Emission Rates determined in PSD-LA-638(M-2). ☐

Determined as BACT. ☐

NOX: 153.2 lb/hr; Use Dry Low NOX (DLN) combustor technology and good operating practices. ☐

CO: 750.53 lb/hr; Good engineering practice and combustion control. ☐

VOC: 54.33 lb/hr; Good engineering practice and combustion control. [LAC 33:III.509]

GRP011 Scenario 5: 2-98 SD No. 2 Cogeneration Unit

159 Maximum Allowable Emission Rates determined in PSD-LA-638(M-2). ☐

Determined as BACT. ☐

NOX: 51.4 lb/hr; Use Dry Low NOX (DLN) combustor technology and good operating practices. ☐

CO: 271.7 lb/hr; Good engineering practice and combustion control. ☐

VOC: 16.1 lb/hr; Good engineering practice and combustion control. [LAC 33:III.509]

General Information

AI ID: 51854 Carville Energy LLC - Carville Energy Center
Activity Number: PER20040004
Permit Number: 1280-00092-V2
Air - Title V Regular Permit Renewal

Also Known As:	ID	Name	User Group	Start Date
	1280-00092	Carville Energy LLC - Carville Energy Center	GDS Number	12-09-1999
	1280-0092	Carville Energy LLC - Carville Energy Center	Emission Inventory	03-03-2004
	36-4309608	Federal Tax ID	Federal Tax ID	11-21-1999
	LA0110604	LPDES #	LPDES Permit #	05-22-2003
	LAR05N189	LPDES #	LPDES Permit #	04-05-2002
	LAR10B783	LPDES #	LPDES Permit #	02-28-2002
		Priority 2 Emergency Site	Priority 2 Emergency Site	07-25-2006
	G-047-12290	Site ID #	Solid Waste Facility No.	08-25-1999

Main Phone: 8475599800

Physical Location:

4332 Hwy 30
St. Gabriel, LA 70776

Mailing Address:

PO Box 418
St. Gabriel, LA 707760418

Location of Front Gate:

30° 13' 47" 85 hundredths latitude, 91° 2' 47" 27 hundredths longitude, Coordinate Method: Interpolation - Map, Coordinate Datum: NAD27

Related People:

Name	Mailing Address	Phone (Type)	Relationship
Aida Guloy	700 Milam St Ste 800 Houston, TX 77002	AIDA.GULOY@CAL	Emission Inventory Contact for
Aida Guloy	700 Milam St Ste 800 Houston, TX 77002	7135704865 (WP)	Emission Inventory Contact for
Aida Guloy	700 Milam St Ste 800 Houston, TX 77002	7138302001 (WF)	Emission Inventory Contact for
Reg Jones	4322 Hwy 30 St. Gabriel, LA 70776	rjones@calpine.com	Air Permit Contact For
Reg Jones	4322 Hwy 30 St. Gabriel, LA 70776	rjones@calpine.com	Water Billing Party for
Reg Jones	4322 Hwy 30 St. Gabriel, LA 70776	2256422354 (WP)	Water Billing Party for
Reg Jones	4322 Hwy 30 St. Gabriel, LA 70776	2256428994 (WF)	Water Billing Party for
Reg Jones	4322 Hwy 30 St. Gabriel, LA 70776	2256428994 (WF)	Air Permit Contact For
Reg Jones	4322 Hwy 30 St. Gabriel, LA 70776	2256422354 (WP)	Air Permit Contact For
Bob Regan	717 Texas St Ste 1000 Houston, TX 77002	8324764473 (WP)	Responsible Official for

Related Organizations:

Name	Address	Phone (Type)	Relationship
Carville Energy LLC	PO Box 418 St Gabriel, LA 707760418	2256428993 (WP)	Air Billing Party for
Carville Energy LLC	PO Box 418 St Gabriel, LA 707760418	2256428993 (WP)	Operates
Carville Energy LLC	PO Box 418 St Gabriel, LA 707760418	2256428993 (WP)	Owns

SIC Codes:

4939, Combination utilities, nec

General Information

AI ID: 51854 Carville Energy LLC - Carville Energy Center
Activity Number: PER20040004
Permit Number: 1280-00092-V2
Air - Title V Regular Permit Renewal

Please review the information contained in this document for accuracy and completeness. If any changes are required or if you have questions regarding this document, you may contact Mr. David Ferrand, Environmental Assistance Division, at (225) 219-3247 or email your changes to facupdate@la.gov.



DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO
GOVERNOR

MIKE D. McDANIEL, Ph.D.
SECRETARY

Certified Mail No.

Agency Interest (AI) No. 51854
Activity No. PER20060002

Mr. Reg Jones
Plant Manager
Carville Energy, LLC
P.O. Box 418
St. Gabriel, LA 70776

RE: Prevention of Significant Deterioration (PSD) Permit, PSD-LA-638(M-2)
Carville Energy LLC - Carville Energy Center
Carville Energy LLC, St. Gabriel, Iberville Parish, Louisiana

Dear Mr. Jones:

Enclosed is your permit, PSD-LA-638(M-2), with the requested changes. Previous deadlines for construction are still valid and must be adhered to.

Should you have any questions, contact Christopher Smith of the Air Permits Division at (225) 219-3112.

Sincerely,

Chuck Carr Brown, Ph.D.
Assistant Secretary

Date

CCB:CWS

c: US EPA Region VI

ENVIRONMENTAL SERVICES

: PO BOX 4313, BATON ROUGE, LA 70821-4313

P:225-219-3181 F:225-219-3309

WWW.DEQ.LOUISIANA.GOV

Agency Interest No. 51854

PSD-LA-638(M-2)

**AUTHORIZATION TO CONSTRUCT AND OPERATE AN EXISTING FACILITY
PURSUANT TO THE PREVENTION OF SIGNIFICANT DETERIORATION
REGULATIONS IN LOUISIANA ENVIRONMENTAL REGULATORY CODE,
LAC 33:III.509**

In accordance with the provisions of the Louisiana Environmental Regulatory Code, LAC 33:III.509,

Carville Energy, LLC
P.O. Box 418
St. Gabriel, LA 70776

is authorized to operate the cogeneration power plant at the Carville Energy LLC - Carville Energy Center near

4332 Hwy 30
St. Gabriel
Iberville Parish, Louisiana

subject to the emissions limitations, monitoring requirements, and other conditions set forth hereinafter.

This PSD modifies
additional new or

LA-638(M-1) does not authorize construction of any

Signed this _____

PW

_____, 2007.

Chuck Carr Brown, Ph.D.
Assistant Secretary
Office of Environmental Services
Louisiana Department of Environmental Quality

BRIEFING SHEET

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy LLC
St. Gabriel, Iberville Parish, Louisiana
PSD-LA-638(M-2)

PURPOSE

Carville Energy, LLC, owns the Carville Energy Center, a cogeneration power plant. Carville Energy Center is operated by Calpine Operating Services Co. The facility commenced operation in 2003. The Carville Energy Center currently operates under Permit No. 1280-00092-V1, issued May 16, 2001, PSD-LA-638(M-1), issued May 16, 2001, and Permit No. 1280-00092-IV1, issued May 22, 2002. This permit modification incorporates start-up / shut-down emissions from the power plant into the permit.

RECOMMENDATION

Approval of the proposed construction and issuance of a permit.

REVIEWING AGENCY

Louisiana Department of Environmental Quality, Office of Environmental Services, Air Permits Division

PROJECT DESCRIPTION

This permit modification incorporates start-up/shut-down emissions from the power plant into this PSD permit. Start-up operations are defined as the time when the unit starts combusting fuel until Mode 6Q is achieved. Mode 6Q is primarily driven by the reference temperature of the combustion turbine, which is a temperature of the exhaust of the turbine. The gas valves open when the reference temperature on the combustion turbine reaches 2,145°F. The Continuous Emission Monitor System (CEMS) has a signal for when the unit reaches Mode 6Q. Shut-down is the reverse of Start-up, when the unit transfers out of Mode 6Q at 2,140°F until no fuel is combusted. Because the Carville Energy Center uses natural gas to fuel the turbines, only Nitrogen Oxides (NO_x), Carbon Monoxide (CO), and Volatile Organic Compounds (VOCs) are the pollutants of concern.

A substantial technological limitation exists with respect to limiting start-up / shut-down emissions for combined cycle generating units. Start-up event duration is limited by the time required to adequately warm the heat recovery steam generator (HRSG), associated steam-handling systems and the steam turbine without imparting harmful thermal stresses to this equipment. As the combustion turbine begins operation, the exhaust gases which pass through the HRSG warm the water filled tubes, which begins the process of creating steam to drive the steam turbine. Although the process of creating steam can begin relatively quickly, an abrupt introduction of steam to the steam turbine can result in uneven expansion of components. This uneven expansion of components can have severe adverse effects on its ability to operate, as well as creating a significant safety hazard. In general, the more time a combined cycle generating unit has been off-line, the more time is required to properly warm the steam cycle.

BRIEFING SHEET

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy LLC
St. Gabriel, Iberville Parish, Louisiana
PSD-LA-638(M-2)

There are two types of start-up events depending on the length of time that the turbine is off-line between operational events. A cold start is associated with the turbine being offline for more than 48 hours, while a warm start occurs when a unit is down for less than 48 hours.

Emission increases for both NO_x, CO, and VOC are primarily due to including the start-up / shut-down emissions of the two turbines, EQT001, 1-98A Gas Turbine No. 1, and EQT002, 2-98A Gas Turbine No. 2. These emissions have existed at the site since initial start-up but have not been required to be in the permit. The emission increases are not due to the installation or modification of any new equipment at the site. Because of the shared stack, the annual start-up/shut-down emissions are included on GRP005, 1-98 No. 1 Cogeneration Unit, and GRP006, 2-98 No. 2 Cogeneration Unit. Carville Energy will demonstrate compliance with the permit limits for GRP005 and GRP006 by following the monitoring, recordkeeping, and calculation methods detailed in Specific Condition No. 4.

In this PSD modification, Carville Energy will also reduce the annual Particulate Matter (PM₁₀) emissions from the duct burners, EQT006, 1-98B HRSG Duct Burner No. 1, and EQT007, 2-98B HRSG Duct Burner No. 2, by 8.72 tons per year. The reduction is due to a recalculation of the annual PM₁₀ emissions by Carville Energy. This reduction is not due to a modification of the existing equipment.

TYPE OF REVIEW

This PSD modification presents the review for Particulate Matter (PM₁₀), Nitrogen Oxide (NO_x), Carbon Monoxide (CO), and Volatile Organic Compound (VOC) emissions from previous PSD modifications for Carville Energy, in addition to a review for the start-up/shut-down emissions. In permits PSD-LA-638(M-1) and PSD-LA-638, PM₁₀, NO_x, and CO emissions exceeded the PSD significance levels. The review, in accordance with PSD regulations, performed in these permits is still applicable for the cooling towers, turbines, or duct burners. Emissions of LAC 33:III.Chapter 51-regulated toxic air pollutants (TAP) have been reviewed pursuant to the requirements of the Louisiana Air Quality Regulations.

BEST AVAILABLE CONTROL TECHNOLOGY

Best Available Control Technology (BACT) has been selected for the start-up/shut-down emissions included in this PSD modification. The selection of control technology was based on the BACT analysis using a "top down" approach and included consideration of control of toxic materials. There is no change in the BACT analysis specified in the previous PSD Permits No. PSD-LA-638(M-1), issued May 16, 2001, and PSD-LA-638 dated December 9, 1999, for the cooling towers, turbines, or duct burners.

BRIEFING SHEET

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy LLC
St. Gabriel, Iberville Parish, Louisiana
PSD-LA-638(M-2)

Scenario 1: 1-98 SU - No. 1 Cogeneration Unit (GRP007)

Scenario 2: 1-98 SD - No. 1 Cogeneration Unit (GRP008)

Scenario 4: 2-98 SU - No. 2 Cogeneration Unit (GRP010)

Scenario 5: 2-98 SD - No. 2 Cogeneration Unit (GRP011)

NO_x: BACT is the use of Dry Low NO_x (DLN) combustor technology and good engineering practices on the co-generation units.

CO: BACT is good engineering practice and combustion control on the co-generation unit.

VOC: BACT is good engineering practice and combustion control on the co-generation unit.

5-00 - Cooling Tower (EQT003)

PM₁₀: BACT is the use of mechanical or induced draft cooling towers with drift eliminators, and good operating practices, as determined in PSD-LA-638(M-1).

1-98A - Gas Turbine No. 1 (EQT001)

2-98A - Gas Turbine No. 2 (EQT002)

PM₁₀: BACT is PM₁₀ emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the turbines, using good combustion practices, as determined in PSD-LA-638.

NO_x: BACT is the use of Dry Low NO_x (DLN) combustors and burners in the turbines, as determined in PSD-LA-638. The permittee will maintain maximum NO_x emissions to 9 ppmv 15% O₂. The NO_x emissions for the combustion turbine during augmentation mode shall not exceed more than 15 ppmv at 15% O₂.

CO: Good design and operating practices, natural gas as fuel with DLN burners, are the appropriate BACT control technologies, as determined in PSD-LA-638. Maximum CO emissions are limited to 25 ppmv at 15% oxygen.

1-98B - HRSG Duct Burner No. 1 (EQT006)

2-98B - HRSG Duct Burner No. 2 (EQT007)

PM₁₀: BACT is PM₁₀ emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the burners, using good combustion practices, as determined in PSD-LA-638.

NO_x: BACT is the use of Dry Low NO_x (DLN) combustors and burners, as determined in PSD-LA-638.

CO: Good design and operating practices, natural gas as fuel with DLN burners, are the appropriate BACT control technologies, as determined in PSD-LA-638. Maximum CO emissions are limited to 25 ppmv at 15% oxygen.

BRIEFING SHEET

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy LLC
St. Gabriel, Iberville Parish, Louisiana
PSD-LA-638(M-2)

AIR QUALITY IMPACT ANALYSIS

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants emitted in significant amounts at the Carville Energy Center.

The Industrial Source Complex, Short-Term, Version 3 (ISCST3) modeling performed for PSD-LA-638(M-1) is sufficient for this minor modification to the PSD permit. The modeling indicated maximum ground level concentrations of PM₁₀, NO_x and CO are below the preconstruction monitoring exemption levels and the ambient significance levels. No preconstruction monitoring, increment analysis, or refined modeling is required for these pollutants. VOC increases were less than 50 tons per year; therefore no ambient impact analysis was required.

ADDITIONAL IMPACTS

Soils, vegetation, and visibility will not be adversely impacted by the modification, nor will any Class I area be affected. The project will not result in any significant secondary growth effects. No new permanent jobs will be created through this modification.

PROCESSING TIME

Application Dated:	June 11, 2004
Application Received:	June 11, 2004
Additional Information Dated:	June 29, and December 19, 2006
Effective Completeness Date:	December 29, 2006

PUBLIC NOTICE

A notice requesting public comment on the proposed project was published in *The Advocate*, Baton Rouge, Louisiana, on <<Date>>, 2007; and in <<Local Paper>>, <<City>>, Louisiana, on <<Date>>, 2007. Copies of the public notice were also mailed to individuals who have requested to be placed on the mailing list maintained by the Office of Environmental Services on <<Date>>, 2007. A proposed permit was also submitted to U.S. EPA Region VI on <<Date>>, 2007. All comments will be considered prior to a final permit decision.

PRELIMINARY DETERMINATION SUMMARY

Carville Energy LLC - Carville Energy Center

Agency Interest No.: 51854

Carville Energy LLC

St. Gabriel, Iberville Parish, Louisiana

PSD-LA-638(M-2)

December 29, 2006

I. APPLICANT

Carville Energy, LLC
P.O. Box 418
St. Gabriel, LA 70776

II. LOCATION

Carville Energy LLC - Carville Energy Center is located at 4332 LA Hwy 30, St. Gabriel, Louisiana. Approximate UTM coordinates are 686.045 kilometers East, 3345.609 kilometers North, zone 15.

III. PROJECT DESCRIPTION

Carville Energy Center is a cogeneration power plant that supplies the primary source of steam to the Total Petrochemicals USA facility (Cos-Mar, Inc.) located north of the site. The facility also provides electricity to the nearby electric transmission system. The facility consists of two combustion turbine units, one steam turbine-generator unit, and two heat recovery steam generator (HRSG) units. The plant electrical generation rating is a nominal 530 megawatts. Each combustion turbine provides exhaust gas to one HRSG unit where steam is produced. The steam is then supplied to the steam-turbine generator for electrical generation and to the adjacent Total Petrochemicals USA facility for employment by the steam host. The units consist of two General Electric Frame 7F gas turbines that are fueled with natural gas.

Emissions occur from two cogeneration units consisting of turbines and HRSGs, one seven-cell cooling tower, equipment fugitives, and other activities such as start-up, shut-down, and insignificant activities.

The duct burners in the HSRGs will fire natural gas and will utilize combustion turbine exhaust as the combustion air supply. Consequently, the duct burners can not operate if the combustion turbines are not operating. These duct burners will be utilized to accommodate fluctuations in steam and electric demands. Particulate matter emissions for the

Another operating condition for the plant occurs when the combustion turbines operate in power augmentation mode. Power augmentation is a combustion turbine operating mode where, for periods of time, the combustion turbine utilizes steam injection to increase output beyond normal operating levels. Additional electric generating capacity from the combustion turbines can be increased approximately 10% above 100% normal capacity for short periods of time. Power augmentation mode is limited to 1,500 hours per year per combustion turbine.

Start-up/shut-down operations at the power plant are included in this modification. Start-up

PRELIMINARY DETERMINATION SUMMARY

Carville Energy LLC - Carville Energy Center

Agency Interest No.: 51854

Carville Energy LLC

St. Gabriel, Iberville Parish, Louisiana

PSD-LA-638(M-2)

December 29, 2006

operations are defined as the time when the unit starts combusting fuel until Mode 6Q is achieved. Mode 6Q is primarily driven by the reference temperature of the combustion turbine, which is a temperature of the exhaust of the turbine. The gas valves open when the reference temperature on the combustion turbine reaches 2,145°F. The Continuous Emission Monitor System (CEMS) has a signal for when the unit reaches Mode 6Q. Shut-down is the reverse of Start-up, when the unit transfers out of Mode 6Q at 2,140°F until no fuel is combusted. Because the Carville Energy Center uses natural gas to fuel the turbines, only Nitrogen Oxides (NO_x), Carbon Monoxide (CO), and Volatile Organic Compounds (VOCs) are the pollutants of concern.

A substantial technological limitation exists with respect to limiting start-up / shut-down emissions for combined cycle generating units. Start-up event duration is limited by the time required to adequately warm the heat recovery steam generator (HRSG), associated steam-handling systems and the steam turbine without imparting harmful thermal stresses to this equipment. As the combustion turbine begins operation, the exhaust gases which pass through the HRSG warm the water filled tubes, which begins the process of creating steam to drive the steam turbine. Although the process of creating steam can begin relatively quickly, an abrupt introduction of steam to the steam turbine can result in uneven expansion of components. This uneven expansion of components can have severe adverse effects on its ability to operate, as well as creating a significant safety hazard. In general, the more time a combined cycle generating unit has been off-line, the more time is required to properly warm the steam cycle.

There are two types of start-up events depending on the length of time that the turbine is off-line between operational events. A cold start is associated with the turbine being offline for more than 48 hours, while a warm start occurs when a unit is down for less than 48 hours.

GRP005, 1-98 No. 1 Cogeneration Unit, lists the Annual (TPY) emission rates which represent the maximum potential-to-emit (PTE) for the unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates. The permittee can select which of the following scenarios and its associated emission rates to operate under without exceeding the maximum PTE for GRP005. GRP007, Scenario 1: 1-98 SU No. 1 Cogeneration Unit, provides the Maximum (lb/hr) emissions for start-up operations during the year for GRP005. GRP008, Scenario 2: 1-98 SD No. 1 Cogeneration Unit provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP005. GRP009, Scenario 3: 1-98 NO No. 1 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP005. Start-up/shut-down emissions are not included in Scenario 3.

GRP006, 2-98 No. 2 Cogeneration Unit, lists the Annual (TPY) emission rates which represent the maximum potential-to-emit (PTE) for the unit. This rate includes both annual rates for normal operations (with an adjusted operating time) and also the start-up & shut-down operating rates. The permittee can select which of the following scenarios and its associated emission rates to operate under without exceeding the maximum PTE for GRP006. GRP010, Scenario 4: 2-98 SU No. 2 Cogeneration Unit, provides the Maximum

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(lb/hr) emissions for start-up operations during the year for GRP006. GRP011, Scenario 5: 2-98 SD No. 2 Cogeneration Unit, provides the Maximum (lb/hr) emissions for shut-down operations during the year for GRP006. GRP012, Scenario 6: 2-98 NO No. 2 Cogeneration Unit, provides the Average (lb/hr) and Maximum (lb/hr) emissions for normal, year-round, operations of GRP006. Start-up/shut-down emissions are not included in Scenario 6.

Emission increases for both NO_x, CO, and VOC are primarily due to including the start-up / shut-down emissions of the two turbines, EQT001, 1-98A Gas Turbine No. 1, and EQT0002, 2-98A Gas Turbine No. 2. These emissions have existed at the site since initial start-up but have not been required to be in the permit. The emission increases are not due to the installation or modification of any new equipment at the site. Because of the shared stack, the annual start-up/shut-down emissions are included on GRP005, 1-98 No. 1 Cogeneration Unit, and GRP006, 2-98 No. 2 Cogeneration Unit. Carville Energy will demonstrate compliance with the permit limits for GRP005 and GRP006 by following the monitoring, recordkeeping, and calculation methods detailed in Specific Condition No. 4.

In this PSD modification, Carville Energy will reduce the annual Particulate Matter (PM₁₀) emissions from the duct burners, EQT006, 1-98B HRSG Duct Burner No. 1, and EQT007, 2-98B HRSG Duct Burner No. 2, by 8.72 tons per year. The reduction is due to a recalculation of the annual PM₁₀ emissions by Carville Energy. This reduction is not due to a modification of the existing equipment.

IV. SOURCE IMPACT ANALYSIS

A proposed net increase in the emission rate of a regulated pollutant above de minimis levels for new major or modified major stationary sources requires review under Prevention of Significant Deterioration regulations, 40 CFR 52.21. PSD review entails the following analyses:

- A. A determination of the Best Available Control Technology (BACT);
- B. An analysis of the existing air quality and a determination of whether or not preconstruction or postconstruction monitoring will be required;
- C. An analysis of the source's impact on total air quality to ensure compliance with the National Ambient Air Quality Standards (NAAQS);
- D. An analysis of the PSD increment consumption;
- E. An analysis of the source related growth impacts;
- F. An analysis of source related growth impacts on soils, vegetation, and visibility;
- G. A Class I Area impact analysis; and

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H. An analysis of the impact of toxic compound emissions.

A. BEST AVAILABLE CONTROL TECHNOLOGY

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a modified major stationary in excess of the specified significant emission rates. The top down approach to the BACT process involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical, environmental, energy, and/or cost considerations, then it is rejected and the next most stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated for any technical, environmental, or economic reason. A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes. Additionally, BACT shall not result in emissions of any pollutant which would exceed any applicable standard under 40 CFR Parts 60 and 61.

For this modification, BACT analyses are required for NO_x and CO emissions from the inclusion of the power plant's start-up / shut-down emissions. Where PM₁₀ is addressed in the BACT analysis, it is assumed that particulate matter (PM) is also being considered.

BACT analyses for PM/PM₁₀

5-00 - Cooling Tower (EQT003)

Natural Draft Cooling Towers

Natural draft cooling towers generate less drift than those of the induced draft design. PM₁₀ is released through cooling towers primarily through drift loss. However, the co-generation units do not provide enough heat to create the draft necessary for a natural draft cooling tower effectively. Therefore, the natural draft cooling tower is not technically feasible.

Mechanically or Induced Draft Cooling Towers

Drift eliminators in induced draft cooling towers rely on inertial separation caused by directional changes in the air stream while passing through the eliminators. Induced draft cooling tower design accepts the integration of drift eliminators. Drift eliminators are a technically feasible technology.

Good Operating Practices

Good operating practices may be applied to limit the quantity of particulate entrained in the cooling tower air stream and amount of drift loss that occurs from the cooling tower. Monitoring the water chemistry will ensure that the total dissolved solids remain at or below

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acceptable levels. Limiting the excess water and air flow as well as avoiding bypass of the drift eliminators will maintain drift loss to a minimum.

BACT is the use of mechanical or induced draft cooling towers with drift eliminators, and good operating practices, as determined in PSD-LA-638(M-1).

1-98A - Gas Turbine No. 1 (EQT001)

2-98A - Gas Turbine No. 2 (EQT002)

1-98B - HRSG Duct Burner No. 1 (EQT006)

2-98B - HRSG Duct Burner No. 2 (EQT007)

Cyclones

Cyclones are a large particulate removal device using the principle of centrifugal force. These devices are generally used to reduce dust loading and collect large particles. Since the turbine will burn only natural gas and the exhaust gases will contain only extremely small size particles. Hence, cyclones are not a feasible control technology for controlling PM₁₀.

Electrostatic Precipitators (ESPs)

Electrostatic Precipitators operate by electrically charging particle and then separating them from the gas stream with a collector of opposite charge. High voltage direct current discharge electrodes, typically wires, are suspended in the gas stream to impose a negative charge on the particles. The particles are driven to positive collecting electrodes (typically plates) located opposite the wires. Particles are removed from the collection plates by rapping devices that strike the collection and discharge electrodes. The dust falls into hoppers and is conveyed to a disposal system. ESP's are usually used to capture coarse particles at high concentration. Small particles at low concentrations are not effectively collected by an ESP. Capital and operating costs of an ESP are usually high.

Fabric Filter or Baghouse

In the fabric filter or baghouse, particle laden gas passes through the filter bags, retaining particles on the filters. The filters are periodically cleaned via shaking, reverse air flow, or pulse jet cleaning. During cleaning, particles are deposited in a hopper for subsequent disposal. Baghouses are used for medium and low gas flow streams with high particulate concentrations. Capital costs of a baghouse are usually very high.

Installation of an add-on control device will create an unacceptable back pressure on the turbines. Combustion turbine performance is very sensitive to back pressure because it reduces the expansion pressure ratio and energy efficiency, thereby resulting in reduced power output, increased fuel usage and increased emission rates.

BACT is particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the turbines and burners, using good combustion practices, as determined in

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BACT analyses for NO_x

Scenario 1: 1-98 SU - No. 1 Cogeneration Unit (GRP007)

Scenario 2: 1-98 SD - No. 1 Cogeneration Unit (GRP008)

Scenario 4: 2-98 SU - No. 2 Cogeneration Unit (GRP010)

Scenario 5: 2-98 SD - No. 2 Cogeneration Unit (GRP011)

Dry Low NO_x (DLN) Technology and Good Engineering Practices

The two identical combined cycle units are equipped with state-of-the art dry Low-NO_x (DLN) combustor technology to control NO_x emissions. The DLN combustor is a dual stage multi-mode combustor, where the primary zone is utilized as a diffusion burning zone for ignition and low load operation. Fuel is introduced in the secondary zone at a given fuel-air-ratio. The air and fuel are premixed prior to introduction into the combustor. The additional excess air in the well-mixed lean mixture cools the flame and reduces the rate of NO_x formation. This manner of lean operation reduces the combustion residence time, which could result in incomplete combustion and higher CO and VOC emissions. The GE DLN combustor technology compensates for the reduced combustion residence time with its fuel staging technique, where the air/fuel ratio in the combustion zone can be carefully controlled to promote far more efficient fuel-air mixing. Control set points are determined to reduce CO and VOC emissions. Therefore, BACT is determined to be the use of Dry Low NO_x (DLN) combustor technology and good engineering practices on the co-generation units.

1-98A - Gas Turbine No. 1 (EQT001)

2-98A - Gas Turbine No. 2 (EQT002)

1-98B - HRSG Duct Burner No. 1 (EQT006)

2-98B - HRSG Duct Burner No. 2 (EQT007)

Selective Catalytic Reduction (SCR)

Selective catalytic reduction (SCR) is the most effective post-combustion NO_x control method considered. In this process, a reducing agent is introduced into the flue gas upstream of a catalyst bed, which is maintained at elevated temperature. Over 90% NO_x reduction can be achieved with ammonia as the reducing agent. However, ammonia emissions are a negative side effect of the technology. The short term and long term steam production demands of the Styrene Plant at the Total Petrochemicals USA facility will vary greatly due to market demands, variations in daily ambient temperatures, and varying operating conditions of the process. Energy requirements will also vary seasonally as a result of the demands for heating and cooling. The variations in the steam demands of the Styrene Plant will be met using duct burners. Firing the duct burners to meet the varying steam demands creates difficulty in maintaining the optimum temperature range for the SCR system. Consequently, optimum NO_x emission reduction efficiency with an SCR may not be

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maintained due to the variation in steam demand. However, SCR is a commercially available control technology which has been used on existing turbines; thus, it is a technically feasible control alternative. To accomplish a NO_x reduction of 90%, an injection rate of 1.0 mole of ammonia (NH_3) per mole of NO_x would be required and a SCR catalyst volume of 45 m^3 would be needed. Nonreacted ammonia emissions, known as ammonia slip, can reach 35 ppmv, but are more typically in the range of 10 ppmv. Using 10 ppmv slip, NH_3 emissions, a class III Louisiana Toxic Air Pollutant, would be 97 tons per year per turbine or 194 tons per year total. The total NO_x reduction due to SCR technology is 169.8 tons per year.

Selective Non-Catalytic Reduction (SNCR)

Selective non-catalytic reduction (SNCR) is a post-combustion process in which a reagent mixture is injected into the elevated temperature flue gas stream. Using urea solution as a reagent, the NO_x OUT process can turn 85% of the NO_x into nitrogen, water, and carbon dioxide. The process may release ammonia during the incomplete decomposition of urea. Additional energy is required to increase flue gas temperature to process conditions. Therefore, SNCR is not an applicable control technology and is eliminated as technically infeasible.

Steam and Water Injection

Steam and water injection increases thermal mass in the combustion chamber by dilution, thus lowering the peak flame temperature in NO_x formation regions. The reduction in flame temperature results in lowered NO_x formation. Both steam and water injection are available control technologies and are used on existing combined cycle gas turbines; thus they are technically feasible control alternatives. However, steam or water injection cannot achieve the same level of emission reduction as dry low NO_x (DLN) technology and thus is eliminated from further consideration.

Dry Low NO_x (DLN) Technology

DLN technology involves adjusting air/fuel ratios, staged combustion, or changing residence time in the combustion chamber. DLN technology is applicable and is deemed a technically feasible method of control for the proposed unit. The proposed combined cycle gas turbine is designed with a DLN combustor for use during natural gas firing. No additional energy is required for the DLN combustor on the combined cycle gas turbine.

A comparison of the NO_x control technologies reveal that two feasible options are DLN and SCR. Carville Energy Center has installed combustion turbines which are best designed with DLN combustor and low NO_x duct burners as best available control technology (BACT).

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BACT analyses for CO

Scenario 1: 1-98 SU - No. 1 Cogeneration Unit (GRP007)

Scenario 2: 1-98 SD - No. 1 Cogeneration Unit (GRP008)

Scenario 4: 2-98 SU - No. 2 Cogeneration Unit (GRP010)

Scenario 5: 2-98 SD - No. 2 Cogeneration Unit (GRP011)

Good Engineering Practice and Combustion Control

No other emission control technology exists to adequately control CO emissions during start-up/shut-down activities. Therefore, BACT is determined to be good engineering practice and combustion control on the co-generation unit for start-up/shut-down operations.

1-98A - Gas Turbine No. 1 (EQT001)

2-98A - Gas Turbine No. 2 (EQT002)

1-98B - HRSG Duct Burner No. 1 (EQT006)

2-98B - HRSG Duct Burner No. 2 (EQT007)

Thermal Oxidizer

Flue gases from combustion equipment could be routed through the thermal oxidizer where the gas will be heated to an operating range of 1,200 – 2,000° Fahrenheit. At this temperature, carbon monoxide will be burned to carbon dioxide. Raising exit gas to the appropriate temperature range will require a significant amount of energy and generate a large quantity of secondary pollutants. Capital costs when using a thermal oxidizer are high and this control will not be technically feasible.

Catalytic Combustion

Catalytic Combustion of carbon monoxide is another control option. Flue gas can be burned in a catalyst bed at 650 – 1,150° Fahrenheit. Approximately 90% of carbon monoxide would be converted to carbon dioxide. Additional energy is required to heat the flue gas and send it through the catalyst bed. The catalyst bed, containing heavy metals, requires replacement and recycling and/or disposal. Capital costs when using catalytic combustion are high and this control will not be technically feasible.

Good Combustion Practices and Equipment Design

CO emissions can also be controlled using good equipment design, gaseous fuels for good mixing, proper combustion techniques, and minimum 2% excess oxygen. These control options are usually less efficient than the oxidation technologies, but they have minimal environmental and economic impact. Good combustion practices and equipment design is a technically feasible control option.

Good combustion practices and equipment design is determined as BACT with a maximum

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CO emission limit of 25 ppmv at 15% oxygen with natural gas as fuel.

BACT analyses for VOC

Scenario 1: 1-98 SU - No. 1 Cogeneration Unit (GRP007)

Scenario 2: 1-98 SD - No. 1 Cogeneration Unit (GRP008)

Scenario 4: 2-98 SU - No. 2 Cogeneration Unit (GRP010)

Scenario 5: 2-98 SD - No. 2 Cogeneration Unit (GRP011)

Good Engineering Practice and Combustion Control

No other emission control technology exists to adequately control CO emissions during start-up/shut-down activities. Therefore, BACT is determined to be good engineering practice and combustion control on the co-generation unit for start-up/shut-down operations.

A summary of BACT costs for technologies eliminated for economic reasons is presented in Table I.

B. ANALYSIS OF EXISTING AIR QUALITY

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants to be emitted in significant amounts from a proposed minor modification. NO_x and CO are pollutants of concern in this case.

ISCST3 modeling of NO_x and CO emissions from the proposed modification that the maximum offsite ground level concentrations of these pollutants will be below their respective PSD significance levels and preconstruction monitoring levels. Therefore, preconstruction monitoring, refined NAAQS modeling, and increment consumption analyses were not required.

C. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

Because ISCST3 modeling analyses indicated concentrations of each pollutant would be below its PSD ambient significance level, refined NAAQS modeling was not required.

D. PSD INCREMENT ANALYSIS

Because ISCST3 modeling analyses indicated concentrations of each pollutant would be below its PSD ambient significance level, PSD increment modeling was not required.

A summary of the air quality analyses is also presented in Table II.

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E. SOURCE RELATED GROWTH IMPACTS

Operation of the Carville Energy Center is not expected to have any significant effect on residential growth or industrial/commercial development in the area of the facility. No significant net change in employment, population, or housing will be associated with the project. As a result, there will not be any significant increases in pollutant emissions indirectly associated with Carville Energy LLC's proposal. There will be no secondary growth effects because of the inclusion of start-up/shut-down emissions and approximately no new permanent jobs.

F. SOILS, VEGETATION, AND VISIBILITY IMPACTS

There will be no significant impact on area soils, vegetation, or visibility.

G. CLASS I AREA IMPACTS

Louisiana's Breton Wildlife Refuge, the nearest Class I area, is over 100 kilometers from the site, precluding any significant impact.

H. TOXIC EMISSIONS IMPACT

The selection of control technology based on the BACT analysis did include consideration of control of toxic emissions.

V. CONCLUSION

The Air Permits Division has made a preliminary determination to approve modification to include start-up / shut-down emissions at the Carville Energy Center near St. Gabriel, in Iberville Parish, Louisiana, subject to the attached specific and general conditions. In the event of a discrepancy in the provisions found in the application and those in this Preliminary Determination Summary, the Preliminary Determination Summary shall prevail.

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1. The permittee is authorized to operate in conformity with the specifications submitted to the Louisiana Department of Environmental Quality (LDEQ) as analyzed in LDEQ's document entitled "Preliminary Determination Summary" dated December 29, 2006, and subject to the following emissions limitations and other specified conditions. Specifications submitted are contained in the application and Emission Inventory Questionnaire dated June 10, 2004, along with supplemental information dated June 29, and December 19, 2006.

MAXIMUM ALLOWABLE EMISSIONS RATES	
ID No. / Description	BACT Limits
1-98A - Gas Turbine No. 1 (EQT001)	<p>PM₁₀: 19.73 lb/hr; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the turbines, using good combustion practices.</p> <p>NO_x** : 85.00 lb/hr; Use Dry Low NO_x (DLN) combustors and burners. Maintain maximum NO_x emissions to 9 ppmv 15% O₂. The NO_x emissions for the combustion turbine during augmentation mode shall not exceed more than 15 ppmv at 15% O₂.</p> <p>CO: 50.00 lb/hr; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen.</p> <p>Operating Capacity: 1,908 MM BTU/hr (LHV)</p>
2-98A - Gas Turbine No. 2 (EQT002)	<p>PM₁₀: 19.73 lb/hr; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the turbines, using good combustion practices.</p> <p>NO_x* : 85.00 lb/hr; Use Dry Low NO_x (DLN) combustors and burners. Maintain maximum NO_x emissions to 9 ppmv 15% O₂. The NO_x emissions for the combustion turbine during augmentation mode shall not exceed more than 15 ppmv at 15% O₂.</p> <p>CO: 50.00 lb/hr; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen.</p> <p>Operating Capacity: 1,908 MM BTU/hr (LHV)</p>
1-98B - HRSG Duct Burner No. 1 (EQT006)	<p>PM₁₀: 4.68 lb/hr; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the burners, using good combustion practices.</p> <p>NO_x: 46.80 lb/hr; Use Dry Low NO_x (DLN) combustors and burners.</p> <p>CO: 46.80 lb/hr; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen.</p> <p>Operating Capacity: 585 MM BTU/hr (LHV)</p>
2-98B - HRSG Duct Burner No. 2 (EQT007)	<p>PM₁₀: 4.68 lb/hr; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the burners, using good combustion practices.</p> <p>NO_x: 46.80 lb/hr; Use Dry Low NO_x (DLN) combustors and burners.</p> <p>CO: 46.80 lb/hr; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen.</p> <p>Operating Capacity: 585 MM BTU/hr (LHV)</p>
<p>* Permittee shall not operate the gas turbine (combustion turbine) in the power augmentation mode for no more than 1,500 hours in a year.</p>	

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Scenario 1: 1-98 SU - No. 1 Cogeneration Unit (GRP007)	NO _x : 153.2 lb/hr; Use Dry Low NO _x (DLN) combustor technology and good engineering practices.
Scenario 4: 2-98 SU - No. 2 Cogeneration Unit (GRP010)	CO: 750.53 lb/hr; Good engineering practice and combustion control. VOC: 54.33 lb/hr; Good engineering practice and combustion control.
Scenario 2: 1-98 SD - No. 1 Cogeneration Unit (GRP008)	NO _x : 51.4 lb/hr; Use Dry Low NO _x (DLN) combustor technology and good engineering practices.
Scenario 5: 2-98 SD - No. 2 Cogeneration Unit (GRP011)	CO: 271.7 lb/hr; Good engineering practice and combustion control. VOC: 16.1 lb/hr; Good engineering practice and combustion control.
BACT Limits determined in PSD-LA-638(M-1)	
ID No. / Description	BACT Limits
5-00 - Cooling Tower (EQT003) **	PM ₁₀ : 1.19 lb/hr; 5.20 TPY; Use of mechanical or induced draft cooling towers through the use of drift eliminators and good operating practices. Operating Capacity: 116,580 gpm
** The single six-cell cooling tower, 5-00 Cooling Tower (EQT003), was installed instead of the two three-cell cooling towers, 3-98 Cooling Tower and 4-98 Cooling Tower, permitted in PSD-LA-638.	
BACT Limits determined in PSD-LA-638	
ID No. / Description	BACT Limits
1-98A - Gas Turbine No. 1 (EQT001)	PM ₁₀ : 19.73 lb/hr; 78.58 TPY; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the turbines, using good combustion practices. NO _x ** : 85.00 lb/hr; 281.55 TPY; Use Dry Low NO _x (DLN) combustors and burners. Maintain maximum NO _x emissions to 9 ppmv 15% O ₂ . The NO _x emissions for the combustion turbine during augmentation mode shall not exceed more than 15 ppmv at 15% O ₂ . CO: 50.00 lb/hr; 146.38 TPY; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen. Operating Capacity: 1,908 MM BTU/hr (LHV)
2-98A - Gas Turbine No. 2 (EQT002)	PM ₁₀ : 19.73 lb/hr; 78.56 TPY; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the turbines, using good combustion practices. NO _x ***: 85.00 lb/hr; 281.54 TPY; Use Dry Low NO _x (DLN) combustors and burners. Maintain maximum NO _x emissions to 9 ppmv 15% O ₂ . The NO _x emissions for the combustion turbine during augmentation mode shall not exceed more than 15 ppmv at 15% O ₂ . CO: 50.00 lb/hr; 146.39 TPY; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen. Operating Capacity: 1,908 MM BTU/hr (LHV)
1-98B - HRSG Duct Burner No. 1 (EQT006)	PM ₁₀ : 4.68 lb/hr; 13.12 TPY; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the burners, using good combustion practices. NO _x : 46.80 lb/hr; 87.61 TPY; Use Dry Low NO _x (DLN) combustors and burners. CO: 46.80 lb/hr; 87.61 TPY; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen. Operating Capacity: 585 MM BTU/hr (LHV)

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MAXIMUM ALLOWABLE EMISSIONS RATES	
2-98B - HRSG Duct Burner No. 2 (EQT007)	PM ₁₀ : 4.68 lb/hr; 13.12 TPY; Particulate emissions of 0.03 lbs/MM BTU without any controls, firing clean natural gas from the burners, using good combustion practices. NO _x : 46.80 lb/hr; 87.61 TPY; Use Dry Low NO _x (DLN) combustors and burners. CO: 46.80 lb/hr; 87.61 TPY; Good design and operating practices, natural gas as fuel with DLN burners. Maximum CO emissions are limited to 25 ppmv at 15% oxygen. Operating Capacity: 585 MM BTU/hr (LHV)
3-98 - Cooling Tower	PM ₁₀ : 0.92 lb/hr; 4.02 TPY; Use induced draft through the use of drift eliminators. Operating Capacity: 90,000 gpm
4-98 - Cooling Tower	PM ₁₀ : 0.92 lb/hr; 4.02 TPY; Use induced draft through the use of drift eliminators. Operating Capacity: 90,000 gpm
*** Permittee shall not operate the gas turbine (combustion turbine) in the power augmentation mode for no more than 1,500 hours in a year.	

2. Permittee shall demonstrate compliance with the permitted emission limits of this permit by performing stack tests on EQT001, 1-98A Gas Turbine No. 1, and EQT006, 1-98B HRSG Duct Burner No. 1, on GRP005, 1-98 No. 1 Cogeneration Unit, using methods found in 40 CFR 60, Appendix A as follows:
 - A. NO_x by Method 20 - Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines.
 - B. Carbon Monoxide by Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources.
 - C. Particulate Matter by Method 5 - Determination of Particulate Emissions from Stationary Sources.

The gas turbines shall be tested at maximum capacity without the duct burners, and then the gas turbines shall be tested with the duct burners. Emissions from the duct burners will be calculated from the differences between the tests.
3. Permittee shall demonstrate compliance with the permitted emission limits of this permit by performing stack tests on EQT002, 2-98A Gas Turbine No. 2, and EQT007, 2-98B HRSG Duct Burner No. 2, on GRP006, 2-98 No. 2 Cogeneration Unit, using methods found in 40 CFR 60, Appendix A as follows:
 - A. NO_x by Method 20 - Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines.
 - B. Carbon Monoxide by Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources.
 - C. Particulate Matter by Method 5 - Determination of Particulate Emissions from Stationary Sources.

The gas turbines shall be tested at maximum capacity without the duct burners, and then the gas turbines shall be tested with the duct burners. Emissions from the duct burners will be calculated from the differences between the tests.
4. In order to demonstrate compliance with the Maximum Potential to Emit (Max PTE) of 382.31 TPY of NO_x, 449.66 TPY of CO, and 38.22 TPY of VOC, for GRP005 – 1-98, the permittee shall perform the following monitoring and recordkeeping operations for NO_x, CO, and VOC.
 1. Permittee shall monitor and record the number of hours each month that GRP005 – 1-98 operated in startup mode. Startup mode is defined as the time the unit starts combusting fuel

SPECIFIC CONDITIONS

Carville Energy LLC - Carville Energy Center
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until Mode 6Q is achieved. Mode 6Q is primarily driven by the reference temperature of the combustion turbine, which is a temperature of the exhaust of the turbine. The gas valves open when the reference temperature on the combustion turbine reaches 2,145°F. The Continuous Emission Monitor System (CEMS) has a signal for when the unit reaches Mode 6Q.

Record each month: Time (hr/mo) _{SU}

2. Permittee shall record the number of hours each month that GRP005 – 1-98 operated in shutdown mode. Shutdown mode is defined as when the unit transfers out of Mode 6Q at 2,140°F until no fuel is combusted.

Record each month: Time (hr/mo) _{SD}

3. Permittee shall calculate the total Time (hr/yr) for startup operations as the sum of the previous twelve month records for startup operations for GRP005.

Calculate: Time (hr/yr) _{SU} = Time (hr/mo) _{SU} for previous 12 months

4. Permittee shall calculate the total Time (hr/yr) for shutdown operations as the sum of the previous twelve month records for shutdown operations for GRP005.

Calculate: Time (hr/yr) _{SD} = Time (hr/mo) _{SD} for previous 12 months

5. Permittee shall calculate the total Time (hr/yr) for both startup and shutdown operations as the sum of the (a) total Time (hr/yr) for startup operations; and the (b) total Time (hr/yr) for shutdown operations.

Calculate: Time (hr/yr) _{SU/SD} = Time (hr/yr) _{SU} + Time (hr/yr) _{SD}

6. Permittee shall calculate the Reduced Time (hr/yr) for Normal Operations as the difference between the Submitted Time (hr/yr), as listed on the EIQ sheet for GRP005, and the total Time (hr/yr) for both startup and shutdown operations.

Calculate: Reduced Time (hr/yr) _{NO} = Submitted Time (hr/yr) _{EIQ} - Time (hr/yr) _{SU/SD}

7. Permittee shall calculate the Max PTE at GRP005 by summing the following three terms (a), (b), and (c). Permittee shall perform this calculation for each of the startup/shutdown pollutants, NO_x, CO, and VOC.

Calculate: Max PTE = (a) + (b) + (c)

- (a) The product of the Average (lb/hr) for normal operations, submitted on the EIQ for GRP005, and the Reduced Time (hr/yr) for Normal Operations, and 1 ton/2,000 lbs;

$$(a) = (\text{Ave (lb/hr)}_{\text{EIQ}}) * (\text{Reduced Time (hr/yr)}_{\text{NO}}) * (1 \text{ ton}/2,000 \text{ lbs})$$

- (b) The product of the Maximum (lb/hr) for startup operations, submitted in the startup calculations for GRP005, and the total Time (hr/yr) for startup operations, and 1 ton/2,000 lbs;

$$(b) = (\text{Max (lb/hr)}_{\text{SU}}) * (\text{Time (hr/yr)}_{\text{SU}}) * (1 \text{ ton}/2,000 \text{ lbs})$$

SPECIFIC CONDITIONS

Carville Energy LLC - Carville Energy Center

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Carville Energy LLC

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- (c) The product of the Maximum (lb/hr) for shutdown operations, submitted in the shutdown calculations for GRP005, and the total Time (hr/yr) for shutdown operations, and 1 ton/2,000 lbs;

$$(c) = (\text{Max (lb/hr)}_{SD}) * (\text{Time (hr/yr)}_{SD}) * (1 \text{ ton}/2,000 \text{ lbs})$$

8. Permittee shall compare the calculated Max PTE with the permit limit for GRP005 to determine compliance with the permit limitation.

Noncompliance with this limitation of the Max PTE is a reportable violation of the permit. Notify the Office of Environmental Compliance, Enforcement Division if the calculated Max PTE (TPY) exceeds the permit limit listed in the permit. Keep records of the calculated Time (hr/yr)_{SU/SD} and Max PTE (TPY). Make records available for inspection by DEQ personnel. Submit an annual report of the calculated Max PTE (TPY) for the preceding calendar year by the 31st of March to the Office of Environmental Compliance, Enforcement Division.

**LOUISIANA AIR EMISSIONS PERMIT
GENERAL CONDITIONS**

- I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.
- II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.
- III. The Emission Rates for Criteria Pollutants, Emission Rates for TAP/HAP & Other Pollutants, and Specific Requirements sections or, where included, Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Requirements or, where included, Tables 2 and 3 of the permit. The synopsis is based on the application and Emission Inventory Questionnaire dated June 10, 2004, along with supplemental information dated June 29, and December 19, 2006.
- IV. This permit shall become invalid, for the sources not constructed, if:
- A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;
 - B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.
- The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.
- This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.
- V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Air Permits Division.
- VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Air Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.
- VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior approval from the Office of Environmental Assessment, Air Quality Assessment Division.

**LOUISIANA AIR EMISSIONS PERMIT
GENERAL CONDITIONS**

- VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Air Quality Assessment Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Air Quality Assessment Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.
- IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Enforcement Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.
- X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.
- XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Enforcement Division with a written report as specified below.
- A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.
- B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.
- C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs A or B above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:
1. Report by June 30 to cover January through March
 2. Report by September 30 to cover April through June
 3. Report by December 31 to cover July through September
 4. Report by March 31 to cover October through December
- D. Each report submitted in accordance with this condition shall contain the following information:
1. Description of noncomplying emission(s);
 2. Cause of noncompliance;
 3. Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
 4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and
 5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.
- E. Any written report submitted in advance of the timeframes specified above, in accordance

**LOUISIANA AIR EMISSIONS PERMIT
GENERAL CONDITIONS**

with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.

- XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:
- A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;
 - B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;
 - C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and
 - D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.
- XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.
- XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.
- XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919 as well as notification requirements specified under LAC 33:III.927.
- XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services, Air Permits Division, within ninety (90) days after the event, to amend this permit.
- XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Air Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be approved as an authorized discharge, these very small releases must:
- 1. Generally be less than 5 TPY
 - 2. Be less than the minimum emission rate (MER)
 - 3. Be scheduled daily, weekly, monthly, etc., or
 - 4. Be necessary prior to plant startup or after shutdown [line or compressor

**LOUISIANA AIR EMISSIONS PERMIT
GENERAL CONDITIONS**

pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

- XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

- XIX. Certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

TABLE I: BACT COST SUMMARY

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy LLC
St. Gabriel, Iberville Parish, Louisiana
PSD-LA-638(M-2)

Control Alternatives	Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost (\$)	Annualized Cost (\$)	Cost Effectiveness (\$/ton)	Notes
Scenario 1: 1-98 SU - No. 1 Cogeneration Unit (GRP007),								
Scenario 2: 1-98 SD - No. 1 Cogeneration Unit (GRP008),								
Scenario 4: 2-98 SU - No. 2 Cogeneration Unit (GRP010),								
Scenario 5: 2-98 SD - No. 2 Cogeneration Unit (GRP011)								
NO _x	Yes/Yes	None	-	-	-	-	-	Chosen as BACT
CO	Yes/Yes	None	-	-	-	-	-	Chosen as BACT
VOC	Yes/Yes	None	-	-	-	-	-	Chosen as BACT
5-00 - Cooling Tower (EQT003)								
PM ₁₀	Yes/Yes	none	-	-	-	-	-	Chosen as BACT
	Yes/No	3	-	-	-	-	-	
1-98A - Gas Turbine No. 1 (EQT001) ,								
2-98A - Gas Turbine No. 2 (EQT002),								
1-98B - HRSG Duct Burner No. 1 (EQT006) ,								
2-98B - HRSG Duct Burner No. 2 (EQT007)								
PM ₁₀	Yes/Yes	None	-	-	-	-	-	Chosen as BACT
	Yes/No	1, 2	95%	-	-	-	-	-
	Yes/No	1, 2	90%	-	-	-	-	-
	Yes/No	1,2	-	-	-	-	-	-

TABLE I: BACT COST SUMMARY

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy LLC
St. Gabriel, Iberville Parish, Louisiana
PSD-LA-638(M-2)

Control Alternatives	Availability/ Feasibility	Negative Impacts (a)	Control Efficiency	Emissions Reduction (TPY)	Capital Cost (\$)	Annualized Cost (\$)	Cost Effectiveness (\$/ton)	Notes
NO _x	Yes/Yes	None	9 ppmv/ 15 ppmv *	-	-	-	-	Chosen as BACT
	Yes/Yes	1, 2	6 ppmv	169.8	1,195,728	7,042	7,042	-
	Yes/No	2,3	-	-	-	-	-	-
	Yes/Yes	2	-	-	-	-	-	-
CO	Yes/Yes	None	25 ppmv	-	-	-	-	Chosen as BACT
	Yes/No	1, 2, 3	90%	198.9	548,256	2,756	2,756	-
	Yes/No	1, 3	-	-	-	-	-	-
* The NO _x requirement of 9 ppmv @ 15% Oxygen is a BACT limit for the turbines only and will apply when the HSRG duct burners are not in operation. The NO _x emission limit for the combustion turbine during power augmentation mode shall not exceed more than 15 ppmv at 15% Oxygen. Permittee shall not operate the gas turbine in power augmentation mode for more than 1,500 hr/yr.								
Notes: a) Negative impacts: 1) economic, 2) environmental, 3) energy, 4) safety								

TABLE II: AIR QUALITY ANALYSIS SUMMARY

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy LLC
St. Gabriel, Iberville Parish, Louisiana
PSD-LA-638(M-2)

Pollutant	Averaging Period	Preliminary Screening Concentration ($\mu\text{g}/\text{m}^3$) *	Level of Significant Impact ($\mu\text{g}/\text{m}^3$)	Significant Monitoring Concentration ($\mu\text{g}/\text{m}^3$)	At the Monitoring Station		Background ($\mu\text{g}/\text{m}^3$)	Maximum Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Modeled + Background Concentration ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	Modeled PSD Increment Consumption ($\mu\text{g}/\text{m}^3$)	Allowable Class II PSD Increment ($\mu\text{g}/\text{m}^3$)
					Monitored Values ($\mu\text{g}/\text{m}^3$)	Modeling results ($\mu\text{g}/\text{m}^3$)						
PM ₁₀	24-hour	4.72	5	10	-	-	-	-	-	150	-	30
	Annual	0.24	1	-	-	-	-	-	-	50	-	17
SO ₂	3-hour	-	25	-	-	-	-	-	-	1300	-	512
	24-hour	-	5	13	-	-	-	-	-	365	-	91
	Annual	-	1	-	-	-	-	-	-	80	-	20
NO _x	Annual	0.17	1	14	-	-	-	-	-	100	-	25
	1-hour	26.5	2000	-	-	-	-	-	-	40,000	-	-
CO	8-hour	7.4	500	575	-	-	-	-	-	10,000	-	-
	3-month	-	-	0.1	-	-	-	-	-	1.5	-	-
Lead												

NR = Not required.

* Screening analysis used in PSD-LA-638(M-1).



DEPARTMENT OF ENVIRONMENTAL QUALITY

KATHLEEN BABINEAUX BLANCO

GOVERNOR

MIKE D. McDANIEL, Ph.D.

SECRETARY

ACID RAIN PERMIT

Agency Interest No.: 51854

Activity No.: PER20040005

AGENCY INTEREST NAME: Carville Energy LLC - Carville Energy Center

ORIS CODE: 55404

COMPANY NAME: Carville Energy, LLC

PHYSICAL LOCATION:

4332 Hwy 30

St. Gabriel, LA 70776

CONTACT:

Mr. Reg Jones

Plant Manager

Carville Energy, LLC

P.O. Box 418

St. Gabriel, LA 70776

GRP005 1-98 No. 1 Cogeneration Unit	Year	2007 - 2009	2010 +
	SO ₂ allowances in tons per year	0.0	0.0
	Repowering	N/A	N/A
	NO _x limit	N/A	N/A
GRP006 2-98 No. 2 Cogeneration Unit	Year	2007 - 2009	2010 +
	SO ₂ allowances in tons per year	0.0	0.0
	Repowering	N/A	N/A
	NO _x limit	N/A	N/A

ENVIRONMENTAL SERVICES

: PO BOX 4313, BATON ROUGE, LA 70821-4313

P:225-219-3181 F:225-219-3309

WWW.DEQ.LOUISIANA.GOV

ACID RAIN PERMIT

Carville Energy LLC - Carville Energy Center
Agency Interest No.: 51854
Carville Energy LLC
St. Gabriel, IBERVILLE Parish, Louisiana

A permit for the above referenced facility is hereby approved under LAC 33:III.505 and Title IV of the Clean Air Act. The owner and operator of the source shall comply with the Acid Rain Permit Standard Requirements attached. The permit and agency interest numbers cited below should be referenced in future correspondence regarding this facility.

This permit shall expire at midnight on the _____ of _____, 2012.

Permit No.: 1280-00092-IV2

Chuck Carr Brown, Ph.D.
Assistant Secretary

CCB:CWS
cc: EPA Region VI

PN

ACID RAIN PERMIT STANDARD REQUIREMENTS

Permit Requirements.

- (1) The designated representative of each affected source and each affected unit at the source shall:
 - (i) Submit a complete Acid Rain permit application (including a compliance plan) under 40 CFR part 72 in accordance with the deadlines specified in 40 CFR 72.30;
 - (ii) Submit in a timely manner a complete reduced utilization plan if required under 40 CFR 72.43; and
 - (iii) Submit in a timely manner any supplemental information that the permitting authority determines is necessary in order to review an Acid Rain permit application and issue or deny an Acid Rain permit;
- (2) The owners and operators of each affected source and each affected unit at the source shall:
 - (i) Operate the unit in compliance with a complete Acid Rain permit application or a superceding Acid Rain permit issued by the permitting authority; and
 - (ii) Have an Acid Rain Permit.

Monitoring Requirements.

- (1) The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75.
- (2) The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the source or unit, as appropriate, with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program.
- (3) The requirements of 40 CFR part 75 shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

Sulfur Dioxide Requirements.

- (1) The owners and operators of each source and each affected unit at the source shall:
 - (i) Hold allowances, as of the allowance transfer deadline, in the source's compliance account (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide for the previous calendar year from the affected units at the source; and
 - (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide.
- (2) Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.
- (3) An affected unit shall be subject to the requirements under paragraph (1) of the Sulfur Dioxide Requirements as follows:
 - (i) Starting January 1, 2000, an affected unit under 40 CFR 72.6(a)(2); or

ACID RAIN PERMIT STANDARD REQUIREMENTS

- (ii) Starting on the later of January 1, 2000 or the deadline for monitor certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3).
- (4) Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program.
- (5) An allowance shall not be deducted in order to comply with the requirements under paragraph (1) of the sulfur dioxide requirements prior to the calendar year for which the allowance was allocated.
- (6) An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.
- (7) An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right.

Nitrogen Oxides Requirements.

The owners and operators of the source and each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides.

Excess Emissions Requirements.

- (1) The designated representative of an affected source that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77.
- (2) The owners and operators of an affected source that has excess emissions in any calendar year shall:
 - (i) Pay without demand penalty required, and pay upon demand the interest on that penalty, as required by 40 CFR part 77; and
 - (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77.

Recordkeeping and Reporting Requirements.

- (1) Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by the Administrator or permitting authority:
 - (i) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such 5-year

ACID RAIN PERMIT STANDARD REQUIREMENTS

period until such documents are superseded because of the submission of a new certificate of representation changing the designed representative;

- (ii) All emissions monitoring information, in accordance with 40 CFR part 75, provided that to the extent that 40 CFR part 75 provides for a 3-year period for recordkeeping, the 3-year period shall apply.
 - (iii) Copies of all reports, compliance certifications, and other submissions and all records made or required under the Acid Rain Program; and
 - (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission under the Acid Rain Program or to demonstrate compliance with the requirements of the Acid Rain Program.
- (2) The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR part 72 subpart I and 40 CFR part 75.

Liability.

- (1) Any person who knowingly violates any requirement or prohibition of the Acid Rain Program, a complete Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8, including any requirement of the payment of any penalty owed to the United States; shall be subject to enforcement pursuant to section 113(c) of the Act.
- (2) Any person who knowingly makes a false, material statement in any record, submission, or report under the Acid Rain Program shall be subject to criminal enforcement pursuant to section 113(c) of the Act and 18 U.S.C. 1001.
- (3) No permit revision shall excuse any violation of the requirements of the Acid Rain Program that occurs prior to the date that the revision takes effect.
- (4) Each affected source and each affected unit shall meet the requirements of the Acid Rain Program.
- (5) Any provision of the Acid Rain Program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.
- (6) Any provision of the Acid Rain Program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit.
- (7) Each violation of a provision of 40 CFR parts 72, 73, 74, 75, 76, 77, and 78 by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

Effect on Other Authorities. No provision of the Acid Rain Program, an Acid Rain permit application, an Acid Rain permit, or an exemption under 40 CFR 72.7 or 72.8 shall be construed as:

ACID RAIN PERMIT STANDARD REQUIREMENTS

- (1) Except as expressly provided in Title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of Title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;
- (2) Limiting the number of allowances a source can hold; provided, that the number of allowances held by the source shall not affect the source's obligation to comply with any other provisions of the Act;
- (3) Requiring a change of any kind in any State law regulating electric utility rates and charges, affecting any State law regarding such State regulation, or limiting such State regulation, including any prudence review requirements under such State law;
- (4) Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or
- (5) Interfering with or impairing any program for competitive bidding for power supply in a State in which such program is established.